The University of Jordan
Authorization Form

I, Abdullah Sameh Hasan Al-Kawaldeh, authorize the University of Jordan to supply copies of my Thesis/ Dissertation to libraries or establishments or individuals on request, according to the University of Jordan regulations.

Signature:
Date: 15/12/2011

الجامعة الأردنيــــة
كلية الدراسات العليا

التاريـــخ: ١٤/ ١٢ / ٢٠١١م

نموذج رقم (١٦)
اقرار والتزام بالمعايير الأخلاقية والأمانة العلمية وقوانين الجامعة الأردنية وأنظمتها وتعليماتها لطلبة الدكتوراه

أنا الطالب: عبدالله صالح حسن الخوالدة   الرقم الجامعي: (٩٠٨٠٠٦٤)
تخصص: تمريض صحة مجتمع   الكليـــــة: التمريض

عنوان الاطروحة:
Factors Associated With Primary Health Care Services Utilization among older Adults In the Irbid Governorate of Jordan.

اعلن بأنني قد التزمت بقوانين الجامعة الأردنية وأنظمتها وتعليماتها وقراراتها السارية المفعول المتعلقة باعداد اطروحات الدكتوراه عندما قمت شخصيا" باعداد اطروحتي وذلك بما ينسجم مع الأمانة العلمية وكافة المعايير الأخلاقية المتعارف عليها في كتابة الأطروحات العلمية. كما أنني أعلن بأن اطروحتي هذه غير منقولة أو مستلة من أطاريح أو كتب أو أبحاث أو أي منشورات علمية تم نشرها أو تخزينها في أي وسيلة اعلامية، وتأسيسا" على ما تقدم فانني أتحمل المسؤولية بأنواعها كافة فيما لو تبين غير ذلك بما فيه حق مجلس العمداء في الجامعة الأردنية بالغاء قرار منحي الدرجة العلمية التي حصلت عليها وسحب شهادة التخرج مني بعد صدورها دون أن يكون لي أي حق في التظلم أو الاعتراض أو الطعن بأي صورة كانت في القرار الصادر عن مجلس العمداء بهذا الصدد.

توقيع الطالب: ....   التاريخ: ١٤ / ١٢ / ٢٠١١م

تعتمد كلية الدراسات العليا
هذه النسخة من الرسالــة
التوقيع: .... التاريخ: ٢٠١١/١٢/٢٥

FACTORS ASSOCIATED WITH PRIMARY HEALTH CARE SERVICE UTILIZATION AMONG OLDER ADULTS IN THE IRBID GOVERNORATE OF JORDAN

By
Abdullah Sameh Al-kawaldeh

Supervisor
Dr. Wasileh I. Petro, Prof.

Co-Supervisor
Dr. Madi T. Jaghbir, Prof.

Dr. Margo B. Holm, Prof.

o

This Dissertation was Submitted in Partial Fulfillment of the Requirements for the Doctor of Philosophy Degree in Nursing

Faculty of Graduate Studies
The University of Jordan

December, 2011

COMMITTEE DECISION

This Dissertation (Factors Associated with Primary Health Care Services Utilization among Older Adults in the Irbid Governorate of Jordan) was successfully defended and approved on 27/11/2011

Examination Committee	**Signature**
Dr. Wasileh Issa Petro, (Supervisor) Prof. of Mother & Child Health, Public Health	
Dr. Madi Tawfiq Jaghbir, (Co-Advisor) Prof. of Occupational Health & Environmental Health	
Dr. Margo Holm, (Co-Advisor) Prof. of Occupational Therapy,	
Dr. Fathieh Abu-Moghli (Member) Assoc. Prof. of Nursing Management and Leadership	
Dr. Samiha Suhail Jarrah (Member) Assoc. Prof. of Primary Health Care Nursing	
Dr. Farouk Mohammad Shakhatreh` (Member) Prof. of Community Medicine / Epidemiology	
Dr. Raeda Abu Al Rub (Member) Assoc. Prof. of Nursing Service Administration (Jordan University of Science and Technology)	

AKNOWLEDGEMENT

I would like to have the opportunity to express my gratitude to many people for their contributions and help to complete the PhD dissertation.

First and primary, I would like to express special thanks to Dr. Wasileh Petro, my dissertation supervisor, for her thoughtful advice and guidance, and her support and motivation. Also, my special thanks go to my co-advisors, Dr. Margo Holm and Dr. Madi Jaghbir, for their valuable advice and time. In addition, the faculty members of my doctoral committee, Dr. Fathieh Abu-Moghli, Dr. Samiha Jarrah, Dr. Farouk Shakhatreh and Dr. Raeda Abu-Al Rub deserve exceptional thanks for their efforts and time. I would also like to thank Dr. Wadah Aldamah for his efforts, and Dr. Muayyad Ahmad for his efforts in teaching me the needed skills to conduct the study analyses. Furthermore, I am grateful to the entire faculty of nursing represented by Dr. Muayyad Ahmad, at the University of Jordan, for their kindness and collaboration. Jordanian older adults who agreed to participate in this study really deserve my appreciation for their energy and time. Finally, my sincere gratitude goes to my family for their support. Particularly, I like to thank my parents for their sacrifice and patience. Also, my brothers and sisters deserve special thanks for their support. Finally, my wife deserves special gratitude for her constant encouragement.

LIST OF CONTENTS

Subject	Page
Committee Decision	ii
Acknowledgement	iii
List of Contents	iv
List of Tables	v
List of Figures	vi
List of Abbreviations	vii
List of Appendices	viii
Abstract	ix
Chapter 1	1
Introduction	1
Background	2
Problem Statement	5
Significance of the Study	5
Purpose of the Study	7
Research Questions	7
Study Variables	7
Chapter 2	11
Literature Review	11
Health Services Research	11
Definition of Health Care Services Utilization	12
Definition of Aging and Elderly	14
Older Adult Health Care Services in Jordan	14

Older Adult Health Services Utilization Patterns **16**

Factors Associated with Older Adult PHC Services Utilization **19**

Conceptual Framework **35**

Summary **41**

Chapter 3 **43**

Methodology **43**

Study Design **43**

Setting **43**

Sampling and Selection of Participants **46**

Instruments **49**

Ethical Considerations **53**

Data Collection Procedures **54**

Validity of the Data **56**

Statistical Analysis Plan **62**

Chapter 4 **63**

Results **63**

Characteristics of the Study Sample **63**

Older Adult PHC Services Utilization Patterns **65**

Factors Associated with Older Adult PHC Services Utilization **66**

Predictors of Older Adult PHC Services Utilization **71**

Summary **80**

Chapter 5 **82**

Discussion **82**

Utilization Patterns **82**

Factors Associated with PHC Service Utilization **84**

Predictors of PHC Services Use in the Past 1, 6, and 12 months **89**

Limitations and Strengths of the Study **93**

Conclusion **95**

Implications **96**

Recommendations **96**

References **101**

Appendices **112**

Arabic Abstract **141**

LIST OF TABLES

NUMBER		PAGE
1	Percentage of Older Adults in Jordan, by Years	3
2	Published Studies that Used Andersen's Model of Health Services Use	22
3	The Sample Size and Number of Households from Each Catchment Area	48
4	Definitions of Evaluation Criteria Used by Panel for Your Health and Well-Being Tool	58
5	Panel Content Validity Ratings for Your Health and Well-Being Tool, by Criterion	58
6	Panel Content Validity Ratings for Your Health and Well-Being Tool	60
7	Descriptive Statistics of the Predisposing, Enabling and Need Variables of Older Adult Participants (n = 190)	64
8	Primary Health Care Services Utilization by Older Adults in the Past 1, 6, and 12 Months	66
9	Factors Associated with Primary Health Care Services Utilization of Older Adults in the Past 1, 6, and 12 Months	67
10	Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 1 Month	73
11	Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 6 Months	76
12	Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 12 Months	79

LIST OF FIGURES

Number		Page
1	Andersen's Original Behavioral Model of Health Service Use	36
2	The Behavioral Model of Health Services Use (Phase 4)	38
3	A Behavioral Model of Health Services Use Including Contextual and Individual Characteristics	39
4	Schematic Representation of the Study Analytic Theoretical Framework with Study Variables Based on Andersen’s Behavioral Model of Health Services Use	40
5	Jordan National Map and Irbid Governorate	44
6	PHC Centers in the Irbid Governorate	45
7	Map of Irbid Governorates Showing the Three Catchment Areas of the Study	47

LIST OF ABBREVIATIONS

MOH	Ministry of Health
WHO	World Health Organization
PHC	Primary Health Care
UN	United Nations
ESCWA	Economic and Social Commission for Western Asia
HHC	High Health Council
HSR	Health Service Research
IOM	Institute of Medicine
MOPIC	Ministry of Planning and International Cooperation
KAH	King Abdullah Hospital
JUH	Jordan University Hospital
RMS	Royal Medical Services
IADLs	Instrumental Activities of Daily Living
PADL	Physical Activities of Daily Living
GDS	Geriatric Depression Scale
DSS	Demographic Surveillance Survey
ADL	Activities of Daily Living
JHUES	Jordan Health Care Utilization and Expenditure Survey
UNRWA	United Nations Relief Works Agency
SDH	Social Determinants of Health
ECAQ	Elderly Cognitive Assessment Questionnaire
SF 12v2	12-Item Short Form Health Survey version two
MMSE	Mini-Mental State Examination

GMS	Geriatric Mental State Schedule
HRQOL	Health-Related Quality of Life
SF-36v2	36-Item Short-Form Health Survey version Two
SF-12v1	12-Item Short Form Health Survey version One
MCS	Mental Component Summary Scales
PCS	Physical Component Summary Scales
NBS	Norm Based Scoring
MEPS	Medical Expenditure Panel Survey
HKSOS	Hong Kong Student Obesity Surveillance
SPSS	Statistical Package for Social Sciences
SD	Standard Deviation

LIST OF APPENDICES

Appendix	Appendix Caption	Page
A	Socio-Demographic Questionnaire	112
B	Elderly Cognitive Assessment Questionnaire ECAQ	114
C	12-Item Short Form Health Survey Standard, Algeria (Arabic Version Two (SF 12v2)	117
D	Copy of Ethical Approval from University of Jordan	124
E	Copy of Ethical Approval from Jordan Ministry of Health	125
F	Permission to use the ECQA Instrument	128
G	Permission to use the Standard, Algeria (Arabic) SF-12v2	129
H	Cover letter and Content Validity Questionnaires	135

FACTORS ASSOCIATED WITH PRIMARY HEALTH CARE SERVICE UTILIZATION AMONG OLDER ADULTS IN THE IRBID GOVERNORATE OF JORDAN

By
Abdullah S. Al-kawladeh

Supervisor
Dr. Wasileh Petro, Prof.

Co- Supervisor
Dr. Margo B. Holm, Prof.
Dr. Madi T. Jaghbir, Prof.

ABSTRACT

Aim: The aim of this study was to examine patterns and factors that were associated with primary health care (PHC) services utilization in the past 1, 6, and 12 month periods by Jordanians aged 50 years and older living in Irbid governorate of north Jordan in 2011.
Method: A cross-sectional study design was used to collect data from 190 participants using a household face-to-face interview. The dependent variable was PHC service utilization. Using Andersen's Model of Health Service Use, independent variables were categorized into three groups: predisposing, enabling and need factors. Descriptive statistics, mostly percentages, were employed. Correlations and binary logistic regression models were used to examine the association between independent variables and PHC services utilization.
Results: In the past 1 month, the medical and nursing services were used by less than half of the participants. In the past 6 months, medical services were used by 68.4% and nursing services were used by 31.6% of participants. In the past 12 month, medical services were used by 73.8% and nursing services were used by 44.8% of participants. In the bivariate analysis, the use of PHC services in the past 1 month was associated with education level, tobacco use, chronic illnesses, perceived general health status today**,** Physical Component Summary (PCS) score. In the past 6 months, the use of PHC services was associated with age, education level, tobacco use, employment, chronic illnesses, perceived general health status today, and perceived general health status in past 6 months. In the past 12 months, the use of PHC services was associated with age, education level, tobacco use, employment, chronic illnesses, perceived general health status today, and perceived general health status in past 12 months. In the multivariate analysis, the primary predictor of PHC services use in the past 1, 6 and 12 months among older adults was a need factor, specifically, chronic illnesses (OR= 13.32; 95 % CI= 3.61-49.12), (OR= 19.63; 95 % CI= 7.67-50.20), and (OR= 17.91; 95 % CI= 6.97-46.02), respectively.
Conclusions: There was a high rate of chronic illness among older adults in the sampled catchments areas of the Irbid governorate of north Jordan**.** Findings reflected high utilization rates of PHC services**.** Several predisposing and need factors were

identified that were associated with PHC service utilization. However, the strongest predictor of PHC service utilization was chronic illnesses.
Implications and Recommendations: Implications for research, policy and health care systems, and nursing practice and education were discussed and recommendations were outlined.
Key words: Older adults, health care service, utilization, pattern, Andersen's model and Jordan.

Chapter 1

Introduction

Increased longevity is an achievement of public health programs and the result of economic and social improvement. However, many people will face the risk of having at least one chronic illness for instance; diabetes, hypertension, and osteo-muscular conditions as they become old (World Health Organization; WHO, 2010). Recently, the proportion of older adults in developing countries has increased significantly (Dominguez, Galioto, Ferlisi, Pineo, Putignano, Belvedere, Costanza & Barbagallo, 2006). Middle income countries have found that this increase in the older adult people represents a major challenge for organizations of the health care as a result of the physical, social and psychological changes associated with complex morbidity and mortality profiles (WHO, 2002). Subsequently, all countries need to be prepared to address the consequences of the demographic trends associated with aging populations. This will require planning for the increasing chronic illnesses burden and implementation of health promotion and disease prevention interventions at the society level, in addition to disease management strategies within health care systems (WHO, 2010).

Primary health care (PHC) services have a basic role in the health care system (Lucas & Gilles, 2003). The PHC is the fundamental method for health care services delivery at the most local level of a country's health care system (WHO, 2010). They are regarded as ways of helping to reduce medical expenses and offer more effective and fair care to populations (Starfield, Shi & Macinko, 2005). Similarly, recognizing a variety of factors that might influence an individual’s health is important for the provision of effective services in primary health care settings (McKague & Verhoef, 2003).

Primary health care centers provide preventive, curative and rehabilitative services to the community (Lucas & Gilles, 2003). The PHC center has a critical role in maintaining the health of older adults, and there is a need for these centers to be adapted and accessible to older populations (WHO, 2010). They may be well built and equipped with adequate human and material resources, and well supported; however, they may be underutilized due to economic, educational, geographical, socio-cultural, political, legal or religious factors (Lucas & Gilles, 2003).

Background

The world population is aging. At present, there are 600 million people aged 60 and over globally; this figure will be twice by 2025 and will reach nearly two billions by 2050. The majority of older persons will be living in developing countries that are frequently the least prepared to face the challenges of quickly aging communities (WHO, 2010). After 2010, more quick population aging is expected among Arab countries. By 2050, the percentage of older persons is expected to increase to 19 %, whereas the children less than 15 percentage will decline (Mirkin, 2010).

In Jordan, the population was approximately 5.5 million in 2005. By 2050, the population is expected to increase to between 8.5 and 14.8 million people (United Nations; UN, 2007). This increase may be attributed to a number of factors including the slightly decrease in total fertility rates, decline in infant and child mortality rates, the increase in life expectancy, decrease in adult mortality rates, health care services development, increased levels of education particularly among females, improved nutrition, and changes in living circumstances (Tabbarah, 2002). The percentage of the population aged 65 and more in Jordan has slightly decreased in the period 1950-1995, from 4.8 percent to 2.5 percent. Then, the percentage of older people increased to 3.7

percent by the year 2010. In 2050, it is expected to reach 13.8 percent (UN, 2008) (see Table 1).

Table 1. Percentage of Older Adults in Jordan, by Years

Year	Percentage of Older Adults
1950	4.8
1980	3.1
1995	2.5
2005	3.5
2010	3.7
2020	4.3
2030	6.0
2040	9.5
2050	13.8

N.B. Source: United Nations, World Population Prospects: 2008 Revision.

Age has been recognized as a significant social determinant of health. (Lioyd-Sherlock, 2000). Older persons experience a greater level of morbidity (British Geriatrics Society, 2008). Also, they demonstrate limited regenerative abilities and are further prone to disease, sickness and syndromes. Among adults, reduced capability to generate income and the rising risk of illness will increase the susceptibility of older adults to poverty, despite of their original economic status, in developing and industrialized countries (Lioyd-Sherlock, 2000). Furthermore, older age, when combined with lower socioeconomic status, leads to worse health (House, Lantz & Herd, 2005).

Health care utilization has been found to be mostly associated with health status and functional status (Walter-Ginzburg, Chetrit, Medina, Blumstein, Gindin & Modan, 2001). Therefore, it is not surprising that general utilization of health care appears to increase significantly with increasing age (Nie, Wang, Tracy, Moineddin & Upshur, 2008). Subsequently, older adults tend to be repeated physicians' services users and health care services users (British Geriatrics Society, 2008).

In Arab the countries, the majority of older adults lives with family and depends on care and contributions provided by their family members. On the other hand, the nuclear family unit is gradually replacing the extended family and is threatening to weaken this support system (Economic and Social Commission for Western Asia (ESCWA), 2007).

Although an aging population may have important consequences for all areas of society, it is expected to affect the sustainability of health care systems (Schulz, 2004). In addition, population aging puts pressure on a community's ability to support their older members. A generally used indicator of societal support is the dependency ratio. The ratio of the population aged 60 or over to that of the population aged 15 to 59 years is helpful as a measure of the possible economic burden that older generations will force on younger ones. In the Arab region, the ratio will nearly triple from 10 persons aged 60 years and more per 100 persons of working age in 2010, to 28 persons 60 years and more in 2050 per 100 persons in the working ages. This signifies that in 2010, every 10 working age people are expected to support one older person, while in 2050, less than 4 workers will be able to support one older person (Mirkin, 2010). Furthermore, healthcare expenditures for older adult family members can have a disastrous effect on household finances, particularly in developing countries (Xu, Evans, Carrin, Aguilar-Rivera, Musgrove & Evans, 2007).

The PHC service use is inadequately understood in several parts of the developing world (Baker & Liu, 2006). Also, the lack of specific reference to older people in the Millennium Development Goals (United Nations, 2005) disenfranchised the aging population. For these reasons, the health care of older adults represents a significant unmet health need, and for which health services use is very significant

(Agbogidi & Azodo, 2010). Subsequently, providing appropriate health services to older adults is surfacing as one of the main challenges of this century (Stone, 2000).

Worldwide, the increasing health care demands of older persons requires a better understanding of factors influencing health care service utilization patterns (De-Córdova, Mier, Curi, Gómez, Quirarte, & Barrios, 2010).

Problem Statements

Given the above information, in Jordan there is an inadequate amount of reliable information existing on health care utilization rates and thus health care planners are incapable to estimate the population real needs (High Health Council (HHC), 2007). Moreover, few studies have been conducted to describe older adult's health status (Mahasneh, 2000). According to the WHO (2004), even the presented data available on the health and social needs of the older adult population in particular is inadequate. More specifically, a comprehensive literature review revealed a gap in health care research regarding factors that influence PHC service use among older adults in Jordan. Therefore, it is the purpose of this study to emphasize on the factors influencing utilization of PHC services by older adult Jordanian population.

Significance

The results of this study will contribute to the geriatric nursing body of knowledge, nursing practice, PHC system and health policy in Jordan.

The results of this study will add to the geriatric nursing body of knowledge by expanding the understanding of old adult health care seeking behaviors in terms of patterns and factors associated with PHC services utilization. The study is also designed to impact nursing practice by increasing awareness of nurses about the old adult PHC services utilization. The findings may also provide support for specialized training in geriatric care for nurses.

For the PHC system, this study will provide data on health care services that will help primary health care system to provide services more sensitive to the older adults needs and are community based, which may considered a long-term cost savings for the health system. It will also provide data that will be useful to the health care system for future development of an infrastructure for older adult health care.

At the level of health policy, this study will help to: (a) increase awareness regarding older adults health care utilization among governmental, non-governmental organizations, and the society leaders, and help the government in organizing training chances for appropriate staff, (b) help to understand health behaviors of the aging population in Jordan so that planning for health human resources can be based on real needs, (c) help policy makers understand old adults PHC seeking behavior, and thus provide important information for designing and building future health policies and programs that may decrease the aging populations burden on community and its economy, (d) understand the PHC seeking behavior in order to project future spending on PHC in Jordan, and (e) provide information so that public policies for creating a healthier society will be based on empirical data (Marmot & Wilkinson, 2001).

This study, to our knowledge, will be the first study of its nature, scope and focus to determine factors affecting utilization of PHC services among older adults over 50 years of age in Jordan.

Finally, older adults are important members of any society and are entitled to a fair share of the health and social services available (Mahfouz, Al-Sharif, El-Gamal & Kisha, 2004). Also, promoting mental-well being and good health among older adults are significant responsibilities of all societies, including Jordan (Rohrer, Kruse, Borders & Kupersmith, 2003).

Purpose of the Study

The purpose of this study is to examine patterns and factors that are associated with primary health care services utilization by Jordanians aged 50 year and older living in Irbid governorate, north Jordan.

Research Questions

Three research questions are proposed:

For Jordanians aged 50 years and older, living in the Irbid governorate of Jordan

- What are the patterns of primary health care services utilization?
- What predisposing, enabling, and need factors are associated with health care service utilization?
- What factors predicted the probability of health care utilization/ non-utilization in the past 1, 6, and 12 months?

Definitions of Study Variables

The selected variables for this study were not meant to be all-inclusive, but rather focused on predisposing, enabling, and need factors. Consequently, a choice to emphasize certain variables had to be made (Habib & Vaughan, 1986). Because it is practically impossible to include all variables in a process in detail, small utilization studies can be adequately broad to contain all potential factors that may play a part in this process (Bailey & Phillips, 1990).

The following dependent and independent variables were chosen for the current study.

The Dependent Variables.

Primary health care service utilization

Theoretical definition: The use of health care services is defined as " The process of seeking professional health care and submitting oneself to the application of regular

health services, with the purpose to prevent and treat health problems" (Scheppers, Van Dongen, Dekker, Geertzen & Dekker, 2006, p. 326).

Operational definition: The dependent variables for the three time-dependent logistic regression models in this study were primary health care service utilization in the past 1, 6, and 12 month periods. Utilization was assessed retrospectively over different time spans in order to minimize the recall biases.

Participants were asked:

- Did you visit the primary health care center in your region during the past month? past 6 months, and past 12 months? For positive responses, participants were then asked: Was the reason for each visits:
    a. Nursing service utilization (for example, dressing, assesses blood pressure, taking blood sample, nursing education), or
    b. Medical service utilization (treatment of illnesses and medication prescriptions).

The Independent Variables.

Based on the Andersen Model of Health Services Use (Andersen, 1960s) and literature review, the following three groups of independent variables were examined in this study:

- Predisposing factors
    a. Age (continuous variable, measured by years).
    b. Gender (dichotomous variable; male or female). .
    c. Health behavior measure: current tobacco use (dichotomous variable; smoker or non smoker).
    d. Employment status (categorical variable; unemployed, retired, employed).
    e. Education level (categorical variable; no education, primary school, secondary and higher).

f. Martial status (categorical variable; married, single, separated or divorced, widowed).

- Enabling Factors

a. Income (continuous variable; personal monthly income).

b. Health insurance coverage (dichotomous variable; insured or not insured).

- Need Factors

a. Chronic illness self-report (dichotomous variable; have/do not have a chronic illness).

b. Cognitive impairment:

Theoretical definition: impaired cognition is expected when people have evidence of alteration in short term memory, poor judgment, inability to deal with difficult tasks or to play a part in common activities and changes personality (Ham, 1997).

Operational definition: it was measured by using the Elderly Cognitive Assessment Questionnaire (ECAQ) (Kua & Ko, 1992).

b. Perceived general health status:

Theoretical definition: How citizens view their own general health, and how they experience symptoms of illness, worries and pain regarding their health and whether or not they judge their problems to be of sufficient importance to seek help of professional (Andersen, 1995).

Operational definition: the perceived general health status in the past 1 month period was measured using the 12-Item Short Form Health Survey version 2 (SF 12v2) (Ware, Kosinski & Keller, 1996). The perceived general health status today, in the past 6, and 12 month period was measured using one basic likert scale self-perceived general health status question. "Now I need to ask you

about your health. On a scale of 1 to 10, with a 1 representing the “worst I have ever felt” and a 10 representing the “best I have ever felt”. What number would best represent your general health today? 6 months ago? 12 months ago?

Chapter 2

Literature Review

This literature review is divided into six major parts: health services research, definition of health care service utilization, definition of aging and older adults, health of older adults in Jordan, factors that influence PHC services utilization and the conceptual framework.

Health Services Research

Increased resources and attention to primary health care systems has increased the use of health services research (HSR) concepts and methods to organize, finance, and deliver public health services. In turn, these components of HSR have become known as systems research and public health services studies (Scutchfield, Marks, Perez & Mays, 2007). However, HSR is not new. HSR started with Florence Nightingale, who, in an attempt to improve patient care quality and outcomes, collected and analyzed data (Gill, 2004). Also, the public health services delivery studies began as early as the 1910s (Turnock & Handler, 1997).

The concept of HSR is continuously developing and has been defined in different ways by a number of researchers and organizations. For example, HSR was defined as a “multidisciplinary field of inquiry, both basic and applied, that examines the use, costs, quality, accessibility, delivery, organization, financing, and outcomes of health care services to increase knowledge and understanding of the structure, processes, and effects of health services for individuals and populations” (The Institute of Medicine (IOM), 1995, pp. 3 and 17). Nursing, medicine, biostatistics, epidemiology, health economics, and medical sociology are among a various health science disciplines that HSR, as a field of research, draws on to concentrate on such size of research (Steinwachs, 1991).

The aim of HSR is to generate data that may make possible improvement in the health of the community (IOM, 1991). The vital objective of HSR is to provide scientific data that can be used by health policy makers at all levels in order to enhance the health of the public (Black, 1997). Understanding how the public uses health care facilities is essential to health administrators for allocation of and planning for health resources (Müller, Smith, Mellor, Rare & Genton, 1998). Health services utilization research attempts to delineate the frequency of, and trends in, health care service use, and the potential factors that influence this use. Consequently, health care services utilization research is important to policy makers, administrators, and health care providers especially if they are relevant to potential areas of development (Habib &Vaughan, 1986). In order to implement primary care strategies successfully, health system research is essential (WHO, 2008a).

Definition of Health Care Services Utilization

Access to health care services is considered as the link between the health care system and the community it serves (Andersen, 1968), and utilization is the proof of access and that access was achieved (Fiedler, 1981).

Utilization of health care has increased as the peoples' need for health care has altered over time. Factors that may have contributed to this change include aging, shifts in the socio-demographics of the population, as well as alterations in both the incidence and prevalence of different illnesses (Bernstein, Hing, Moss, Allen, Siller & Tiggle, 2003).

The use of health care services is defined as " The process of seeking professional health care and submitting oneself to the application of regular health services, with the purpose to prevent and treat health problems" (Scheppers, Van

Dongen, Dekker, Geertzen & Dekker, 2006, p. 326). Also, utilization may be viewed as getting the health care provided through the services of health care in the form of health care contact (Borras, 1994). Health care utilization by the public is often reported in ratios, such as the number of services provided per 1000 persons eligible to receive such services (Mosby's Dental Dictionary, 2008).

For most individuals, public health care is initiated with an illness event (Habib & Vaughan, 1986). However, the events that lead citizens to seek health care originate from diverse factors such as demographic, economic, psychologic, health history, and the availability of health services (Campbell & Roland, 1996). In addition, there are differences in reaction to illness and in utilization among individuals and for the same individual at different times (Habib & Vaughan, 1986).

Self-report is one of the primary methods for gathering data about persons' health status and health care services use (Bhandari & Wagner, 2006). With self-report, however, the recall period is important: 6 months or less is considered optimal for recalling regular physician visits, and approximately 12 months for more infrequent health care visits (Ritter, Stewart, Kaymaz, Sobel, Block & Lorig, 2001).

Because of the increasing demographics of the older adult population, there is increasing recognition of the need to estimate how health care services are delivered and received, and how the health care system could be improved to match the health care needs of the aging population (Fortin, Soubhi, Hudon, Bayliss & VanDenAkker, 2007). Two issues of health care utilization that must be planned for include the particular needs of older adults that must be addressed, and that older adults need proportionately more health services (McMinn, 1996).

Definition of Aging and Elderly

Demographic redistribution of the population, leading to an increase in the aging adult population is the result of better health care and living circumstances, as well as decreases in fertility rates (The Population Division Department of Economic and Social Affairs, 2005). Aging, or growing older over time is a multi-factorial progression that may also be described as increasing loss of function, increasing morbidity, and decreasing fertility associated with advanced age (Kirkwood & Austad, 2000). The actual age used for describing 'elderly' varies among investigators (Mat & Taha, 2003). Traditionally, age 65 and older defined ‘elderly,’ however this was further delineated between ‘early elderly’ (those from 65 throughout 74 years) and ‘late elderly’ (those 75 years and older) (Orimo, Ito, Suzuki, Araki, Hosoi & Sawabe, 2006). In contrast, the United Nations World Assembly on Ageing, held in Vienna in 1982, used '60 years and more’ as the cut-off for older adults. In this study, however, the lower age limit for older adult participants was 50 years of age. It was established because 50 years of age is commonly viewed as a significant point of change in persons' lives; one in which they are moving in the direction of being in the older age group (Joint Commissioning plan, 2009).

When considering an aging population, it is essential to keep away from the idea that the older adults are a burden to the community. Instead, it is important to construct a social system in which elderly citizens, however ‘elderly’ or ‘older adult’ is defined, are able to contribute positively to the public welfare (Orimo, et al., 2006).

Older Adult Health Care Service in Jordan

Similar to other middle income countries, Jordan is experiencing a demographic and epidemiologic redistribution associated with the increase in the older adult population. For example, the increased incidence and prevalence of non-communicable illnesses, predominantly diabetes and cardiovascular diseases

(hypertension, coronary heart disease, and stroke), cancer and chronic respiratory diseases is related to the rise in the older adult population (Ministry of Planning and International Cooperation (MOPIC), 2009).

Jordan MOH delivers primary, secondary and tertiary health care services. The PHC services are delivered throughout Jordan in

- 94 comprehensive health care centers,
- 407 PHC centers,
- 243 village health centers,
- 442 maternal and child health care centers,
- 12 chest clinics, and
- 1882 dental clinics (private and public).

This results in approximately 2.3 centers per 10,000 populations, with an average patient travel time to the closest center of half an hour. Depending on international standards, this signifies a high density system.

The Jordan MOH provides a range of preventive, curative and rehabilitative services to older adults throughout its health care centers and hospitals, existing in every part of the 12 governorates (WHO, 2004). The private sector is also active in curative PHC, accounting for almost 40% of all first patient contacts (MOH, 2008; MOPIC, 2009).

However, in Jordan, specialized health care services for older adults are not available (Mahasneh, 2000). Preventive health care services for older adults are concentrated on the safety of drinking water, food and the environment in nursing homes and societies providing care for the old adult and making sure that nurses, physicians and health inspectors meet other health requirements as well as licensing requirement (WHO, 2004). The curative and rehabilitative services include diagnostic,

treatment, physiotherapy, occupational therapy and rehabilitation. Within the resources of the MOH, older adults are provided with hearing, visual and walking aids and a 75% discount is given to those people who cannot afford these aids. Furthermore, diagnostic, curative and surgical procedures are free of charge for those holding the green card. If the needed services are not obtainable through the MOH then the patients are referred to other hospitals such as the Jordan University Hospital and the Royal Medical Services (WHO, 2004).

It is generally believed that the older adults require the greatest care in health, psychological, social, rehabilitative and nutritional fields (WHO, 2004). According to Mahasneh (2000), the health needs of older adults in Jordan cannot be forgotten --- they need further attention by both government and specialized societies.

Patterns and Factors Associated with Old adult PHC Services Utilization in the Developed Countries

Older Adult Health Services Utilization Patterns.

Older adults experience a greater level of morbidity and are relatively regular users of doctor' services and health care services (Wolinsky & Johnson, 1991). A number of prior studies have explored health services utilization patterns.

Nie, Wang, Tracy, Moineddin, and Upshur (2008) conducted a 1 year population-based retrospective cohort study of health care service utilization in Canada with 1.6 million adults over 65 years of age who were eligible for public health coverage. Utilization for older adults aged 65+ years was 70 events (men = 63, women = 76), with those 85 and older using 155% more services (women = 162%, men = 130%). For all age groups utilization was greater for women. In descending order, utilization was greatest for: Drugs and diagnostics (53.5%), family physician visits (9.0%), specialist office visits (4.6%), X-ray utilization (1.4%), emergency department visits (1.0 %), hospital admissions (0.33%), CT scans (0.31%), and MRI scans (0.05%).

Utilization in all categories was greater for those 85 and older, except for specialist visits and MRI scans (Nie, Wang, Tracy, Moineddin, & Upshur, 2008).

Vegda, Nie, Wang, Tracy, Moineddin, and Upshur (2009) conducted a 2 year cross-sectional chart audit in the academic family practice clinic of Sunnybrook Health Sciences Centre (an academic primary care clinic) in Toronto, Ontario, Canada. Charts of patients 65 and older (n = 2450) were reviewed. They found that older patients (80-84 & 85+ age group) had significantly more: family physician visits (mean = 4.4 visits per year), emergency room mean = 5.1 test days per year), chronic health conditions (mean = 7.7 per patient), and medications (mean = 8.2 medications per person).
In contrast to Nie et al. (2008), Vegda et al., (2009) study found that although females had significantly more family physician visits and number of medications, men had more specialist visits, emergency room visits, and surgical admissions. No genders differences were found for inpatient hospital admissions or number of health conditions (except for the 85+ age group). With advancing age, the study also found greater intra-group variability (Vegda et al., 2009).

In Thailand**,** Villacorta (2003) found out that there were differing levels and patterns of health services utilization among Thai older adults in the previous 12 months. Findings revealed that the majorities (46.4 percent) of Thai older adults depend on self-treatment with over-the-counter medicine, Thai older adults also favor going to government hospitals (21.2 percent) or community health centers (17.7 percent), fewer utilize private hospitals or private clinics (7.54 percent), and very few used specialized units such as the malaria unit (3.37 percent). However, that a substantial percentage of Thai older adults depend on self-treatment with no medicines (18.85 percent), although only a small number still visited traditional healers (3.8 percent).

Data from an Estonian study that analyzed the self-reported use of health services among older Estonians indicated that among the study participants aged 65–74, about 81 percent indicated having visited a general practitioner or specialist throughout the prior 1 year period (Põlluste, Kalda, & Lember, 2009). Similar to Estonian older adults, health service utilization among Nigerian older adult was also high. Agbogidi and Azodo (2010) aimed to verify the health services experiences of 400 older adults in Edo State, Nigeria. The researchers found that the greater part (95.3%) had visited a health care facility and ninety percent (90.3%) reported being sick frequently, however, just 67.8 percent visited a health facility once they were critically sick.

Unlike Estonian and Nigerian older adults, health service use among Chinese older adults in Hong Kong, aged 60 and older, was less than 50 percent. Chou and Chi (2004) found that the health care services used most often in the past 6 months were general outpatient clinic services (36.7%), and then specialist outpatient clinic services (20.8%). Similarly, Yam, Mercer, Wong, Chan and Yeoh (2009) found that health care services use in the past 1 month among older adults in Hong Kong was less than 50 percent. They also found that health service utilization, in descending order was provided by: Western medicine physicians (both generalist and specialist) in a Government clinic (31.1%), private physicians of Western medicine (11.1%), practitioners of Chinese medicine (2.5%), and Western medicine practitioners in Emergency Units (1.9%).

Utilization of nursing health care services has also been examined. Fernandez-Olano, Hidalgo, Cerda-Dıaz, Requena-Gallego, Sanchez- Castano, Urbistondo-Cascales and Otero-Puime (2006) explored the patterns of health care utilization among 787 older adults aged 64 years and older from Albacete City (Castilla-La Mancha,

Spain). The researchers found that of the health care services utilized by 74.5% of older adults in the past 3 months; 18.4% were nursing staff visits, 59.4% were general practitioner visits, and 16.5% were specialist visits. Radiological examinations were performed in 24.9% of the visits and laboratory tests in 39.2%.

Factors Associated with Older Adult PHC Services Utilization.

Patterns in the utilization of health services by older adults have been found to be associated with many factors. Various studies have examined the factors associated with older adult health care utilization (Fernandez-Olano, Hidalgo, Cerda-Dıaz, Requena-Gallego, Sanchez-Castano, Urbistondo-Cascales & Otero-Puime, 2006; Noro, Hakkinen & Laitinen, 1999; and Põlluste, Kalda & Lember, 2009). These studies analyzed the use of health services in a broad context, with a focus on identifying significant determinants of use of different types of health care services by older adults. Other studies explicitly indicated their use of Andersen's Model which guided them in their examinination of utilization (Chang, Lan, Ho & Lan, 2010; Chou & Chi, 2004; Exavery, 2010; Park, 2005; Villacorta, 2003; and Yam, Mercer, Wong, Chan & Yeoh, 2009).

In Spain, Fernandez-Olano et al., (2006) conducted a cross-sectional study of 787 older adults over 64 years of age using home interviews to examine the patterns and the factors associated with health care utilization during the past 3 months. The results revealed that: outpatient services and general practitioner consultations use was not correlated with age, health service contacts were greater for females than males, based on marital status, family income, social class, residence or neighborhood there were no significance differences in outpatient service use, educational level was negatively associated with outpatient services, chronic diseases, medications use and poorer health status were positively associated with general practitioner consultations, and health care

use, instrumental activities of daily living status was not related to health care use, older adults with depression (25.4%) were found to be greater users of health care. In contrast, smoking was negatively associated with health care use. Finally, the perceived need for care was associated with greater health care use. In the multivariate analysis, the significant predictors of general practitioner use were perceived need for care, self-reported health status, and educational level (Fernandez-Olano et al., 2006).

Another study conducted in Finland (Noro, Hakkinen & Laitinen; 1999) examined predictors of total expenditure and use of different kind of health services during the previous 6 months, home care during the previous 2 weeks, and medication use during the previous 1 week by conducting computer-assisted telephone interviews of 1,707 older adults aged 60-79, between 1992 and 1994. The results indicated that age was not a factor in physician visits. However, older age groups had significantly more hospital use but not more hospital days, compared to 60-64 year olds, 70—74 year olds used 95% more hospital days, the oldest age group received almost 500% more home care, women used significantly more physician and public health nurse visits, men used more home care and hospital visits, compared to those living with others, those living alone used 62% more hospital inpatient care and about 400% more home care, and higher levels of education was significantly associated with fewer visits to a public health nurse. Those who perceived they had good health had significantly fewer physician visits than those who perceived their health as moderate or poor, and those with moderate health had more physician visits than those who perceived their health as poor. Also, good perceived health was associated with less use of hospital care while poor perceived health was significantly associated with more use. In contrast to Fernandez-Olano et al. (2006), this study found that restrictions in Instrumental Activities of Daily Living (IADL) were associated with higher physician visits and

more medications, hospital use, and home care and home visits. The authors also found that Physical Activities of Daily Living (PADL) were significantly associated with home care use, home visits, and days spent in hospital. Both chronic illness and psychosomatic symptoms were significant determinants of physician visits, prescribed medications and public health nurse visits.

In Estonia, a study aimed to explain predictors of health care service use in the past 12 months among 182 older Estonians aged 65–74. The findings revealed that the probability of visiting a general practitioner was higher for those participants who lived in rural areas and had health problems, the presence of chronic illness had an impact on the specialist and ambulance services use, participants who had difficulties in getting to their general practitioner were more likely to use ambulance and hospital care services, living in an urban area, higher education, and having a family member with a chronic illness predicted ambulance service use too, and younger age, higher education and income were predictors of dental services use (Põlluste, Kalda & Lember, 2009).

There have been many studies that used the Andersen's behavioral models of health care use as conceptual framework to examine health care service utilization in a variety of settings and with diverse samples (see Table 2).

Regarding older adults population, many studies used Andersen's Model to examine factors associated with health care services utilization by older adults. For example, Chou and Chi in (2004) examined cross-sectional data that were collected from a population sample of 2003 Chinese elderly people aged 60 or more in Hong Kong, to examine if the older adults use of the publicly funded health services in the past 6 months was equitable. Four types of health services were identified (general

Table 2. Published Studies that Used Andersen's Model of Health Services Use.

Publication Year	Authors	Country	Population	Mean Age or Age Range
1999	Douglass & Fox	United States	Clients with Alzheimer's Disease	52 - 100
2000	Calsyn & Winter	United States	Household Older Adults	60 & older
2002	Emlet & Farkas	United States	Persons with HIV/AIDS	30 – 81
2003	Smith	United States	Aging families of Adults with Severe Mental Illness	50 – 88
2004	Forbes & Janzen	Canada	Rural and Urban Canadians	18 & older
2004	Flett, Hirini, Long & Miller	New Zealand	Community Dwelling	40.1
2005	Park	South Korea	Older Adults	65 & older
2007	Reiman	United States	Medical Cannabis Patients	18 – 78
2007	Vingilis, Wade & Seeley	Canada	Canadian Adolescents	- - - -
2009	Blackwell et al.	Canada & United States	Adults	- - - -
2010	Hammond, Matthews & Corbie-Smith	United States	African American Men	18 – 78
2011	Chang et al.	United States	Children with Asthma	0 - 11

outpatient clinics, specialist outpatient clinics, emergency room, and hospital admission), and Anderson's model factors were used as predictors (predisposing, enabling, and need factors). The results of the logistic regression models showed that regarding predisposing factors, age was significantly associated with the possibility of hospital use. In term of enabling factors: personal income was significantly associated

with both general outpatient clinic and specialist outpatient clinic services utilization, and family instrumental care was significantly associated with hospital use. However, the need factors (self-rated health status and particular kinds of chronic illness) were constantly and significantly associated with use of all the four services, and poorer activities of daily living (ADL) scores, as a need factor, were associated with both emergency room and general outpatient clinic use, and greater symptoms of depression (GDS) were associated with hospital use.

Another study from China (Yam, et al, 2009**)**, using Anderson's behavioral framework analyzed factors associated with health care services use by non-institutional older adults for five kinds of health care service use: (1) Western medicine government doctors in the past 1 month, (2) private Western medicine doctors in the past 1 month, (3) Chinese medicine practitioners in the past 1 month, (4) emergency units in the past 1 month, and (5) hospitalization in the past 12 months. The cross-sectional study participants were 4812 older adults, aged 60 and older in Hong Kong. The study found that factors that influenced seeking of health care services by Western medicine government physicians – generalists and specialists, in the past 1 month were: lower monthly household income per capita, not employed (OR = 1.39), multiple chronic or long-term conditions (OR =1.30), low fruit intake (OR = 1.18), and poor perceived health status. In contrast, those who perceived that they had better health (OR = 0.74) and had a higher monthly per capita household income (OR = 0.99) were less likely to consult them (Yam, et al, 2009).

Factors that influenced seeking of health care services by private Western medicine physicians in the past 1 month were: higher monthly household income per capita (OR = 1.00), persons who required caregivers (OR = 1.92), and persons with multi-

morbidity (OR = 1.30). Those with better perceived health status (OR = 0.80) were less likely to consult private Western medicine physicians (Yam, et al, 2009).

Factors that influenced seeking of health care services by Chinese medicine health care services in the past 1 month were: persons with multi-morbidity (OR = 1.56). However, those who were ex-smokers (OR = 0.39 compared with never smoker) and older (OR = 0.96) were negatively related to Chinese medicine practitioner consultation (Yam, et al, 2009).

Factors related to use of emergency unit utilization from Western medicine physicians for health care were: multi-morbidity (OR = 1.58), and living with others (OR = 2.88). Those less likely to consult emergency units staffed with Western medicine physicians there those with: higher monthly household income (OR = 0.99), fewer vegetables eaten per day (OR = 0.48). Those who were more likely to be admitted to a hospital in the past 12 months were: male (OR = 1.27), unemployed (OR = 1.75), those with higher monthly household income (OR = 1.00), those living with a caregiver (OR = 1.96), those with multi-morbidity (OR = 1.27), those who did not exercise regularly (OR = 1.28), and ex-smoker versus non-smoker (OR = 1.35) (Yam, et al, 2009**)**.

Chang, et al. (2010) used the Andersen (1995) model as the analytic framework, with data from the 2005 National Health Interview Survey (NHIS) in Taiwan, to evaluate factors associated with use of health examinations by 2,482 elderly aged 65 years or older. X^2-tests and hierarchical multiple logistic regression models were used to examine the association between study variables and use of health examinations by older adults in Taiwan. The study found that use of health examinations was low, although approximately half (46.8%) of the older adults had used the service in the past. Those more likely to use the health examinations were: older; living with a

spouse, those with a higher educational level, those from Hakka origin, those who reported hypertension and bodily pain, and those who participated in moderate to high exercise. Those who tended not to participate in health examinations were: those who usually used alternative medicine, those who did not answer the cognitive questions, those who were current smokers, and those who had functional limitations.

Exavery (2010) carried out a secondary analysis on a cross-sectional data that were collected using face to face interviews in 2007 in Ghana (Navrongo), Africa. The researcher aimed to identify factors, using Andersen's model, associated with health care utilization in the past 3 years of 594 old adults aged 50 years and more. The results of the bivariate analysis revealed for predisposing factors: age group was significantly associated with health care use; about (24.4%) of participants in the age group 50 – 59 year used health care services, and (36.1%) of those in the age group 60 – 69 year. Likewise, (34.5%) of the participants in the age group 70 year and over used health care services. Ethnic background was significantly associated with health care use; (25.6%) of participants in the *Nankam* ethnic origin group used health care services versus (36.4%) of those in the other ethnic backgrounds, and gender, marital status, level of education, and ever used tobacco were not significantly associated with health care use. For enabling factors: occupation was significantly associated with health care use, monetary capability (adequate versus inadequate money to meet their needs) was not significantly associated with health care use. In term of need factors, significant associations with health care utilization were found for: medical history of chronic conditions, cognitive impairment in past 30 days; and self-reported health status. Results from the logistic regression analysis identified age group, medical history of a chronic condition, cognitive impairment, self-perceived health, and difficulty with

picking up items in the past 30 days as predictors of health care utilization by older adults in Ghana (Exavery, 2010).

Park (2005) used Aday and Andersen Access Framework to identify factors determining long term care utilization in the Korean 2003 Dong-Ku Health Status Survey. Specifically, they were seeking to examine the extent to which equity in the use of long term care services for the old adult aged 65 years or more has been achieved. Using bivariate analyses, they found that those most likely to have used long-term care services: were 80 years and older, had less than13 years of education, lived with others, were religious, had no personal income, had no health insurance and needed medical aid, had poor health status, had ADL/IADL limitations; and had cognitive impairment. In the multivariate analysis, the researcher found that enabling factors (e.g. having insurance coverage and income) were not predictive of long term care service use among older adults. However, need factors (e.g. health status, ADL/ IADL limitations and cognitive conditions) were important determinants of long-term care services use.

Villacorta (2003) also used Anderson's model in a secondary analysis of the baseline Demographic Surveillance Survey (DSS) of Thailand's Kanchanaburi Project in 2000. He sought to identify patterns and levels of health services utilization of 504 older adults aged 60 and older, and to study factors (predisposing, enabling and need) associated with their health services utilization in the past year. Factors associated with greater health care utilization were: older male versus older female, younger-old, middle-old, and old-old, respectively, in percentage of use, married versus unmarried, less educated versus more than educated, from larger households versus smaller households, from rural areas versus urban areas, and chronic illnesses versus communicable illnesses.

In close connection with the Andersen Model of Health Services Use, the WHO thrust to examine social determinants of health (SDH) for the individual and the population (WHO, 2008b) as a theoretical guide. The WHO has increasingly focused attention on the relationship of health and social conditions as contributors to the health status of both individuals and populations (WHO, 2008b).

The SDH can be understood as the contexts and conditions in which people are born, live, grow, work and become old, in addition to the health systems available to them (Kelly, Morgan, Bonnefoy, Butt & Bergman, 2007). Farrell, McAvoy, Wilde, and the Combat Poverty Agency (2008) identified a variety of factors as SDH and these in general may consist of: the wider socio-economic context, inequality, poverty, income, social exclusion, socio-economic position, public policies, health services, employment, education, housing, transport, the built environment, health behaviors or lifestyles, social and community support networks, and stress.

Finally, with no action on SDH, those countries in most need will neither meet the health-related Millennium Development Goals nor accomplish global goals to reduce chronic illnesses such as cardiovascular diseases, diabetes and cancer (Strong, Mathers, Leeder, & Beaglehole, 2005). In addition, SDH may lead to inequalities in health status, and should be considered when planning for health services (Kelly et al., 2007).

Patterns and Factors Associated with Old adult PHC Services Utilization In Arab Region

Although there have been many studies of PHC service utilization patterns and factors in developed countries, few studies have been conducted in Arab regions (Abu-Mourad, Alegakis, Shashaa, Koutis, Lionis & Philalithis, 2008; Al-Ghanim, 2004; and Saeed & Mohamed, 2002). However, the primary focus of these studies was on the use of PHC services by older adults (Mahfouz, Al-Sharif, El-Gamal & Kisha, 2004).

Health Services Utilization Patterns.

Mahfouz et al. (2004) aimed to study the patterns of utilization of PHC services and satisfaction among older adults over age 60 in 26 PHC centers in Asir, Saudi Arabia. In this study the pattern of the PHC utilization was examined by reviewing the family health records from the chosen centers, and satisfaction with PHC services was assessed using interviews and structured questionnaires. In term of the pattern of utilization of PHC services among the 2514 older adults and 24692 non- old adult, the researchers found that on average older adult group visited PHC centers significantly fewer times per year than the younger adult group. However, the older adult group received significantly more referrals to secondary or tertiary care and utilized laboratory facilities more commonly than the younger adult group. In terms of satisfaction, overall, 79.0 percent were satisfied with the services provided. The leading three items of dissatisfaction were: not enough audiovisual means for health education (65.1%), not enough specialty clinics (42.5%), and long waiting times in the clinics (46.4%).

Factors Associated with PHC Utilization.

Abu-Mourad et al. (2008) examined factors associated with PHC services use in the past 6 month among 956 adult PHC attendees in Gaza Strip, Palestine, using Andersen's model. Predisposing factors (age, gender, marital status, work status, education, household size, perceived living conditions, life events (psychological and financial), and health locus of control), enabling factors (household income and urbanization), need factors (self-rated health), and healthy lifestyle (physical activity and smoking) were included in the study. The researchers found that the majority of interviewed patients (64.7%) reported high PHC use in the past 6 months (>3 times for each 6 months). Predisposing factors associated with high PHC use included: older age,

married and divorced or widowed status, unemployed, perceived bad living conditions, current smoking habit. High income, an enabling factor was associated with high PHC use, as was poorly rated health status, a need factor (Abu-Mourad et al., 2008).

Two studies in Saudi Arabia focused on factors that predicted the public and private PHC services utilization. The first study was conducted by (Al-Ghanim, 2004) focused on PHC service utilization in the past 2 weeks, among 410 adult patients aged 18 years and older who attended outpatient clinics in three health care facilities in Riyadh City. Data were collected using self-administered questionnaire and analyzed using descriptive statistics and binary logistic regression. The researcher found two sets of factors that significantly predicted use of private outpatient clinics and public PHC centers: patient-related factors (gender education, income, health insurance, perceived health status and nationality), provider related factors (waiting time, health facility site, opening hours, availability of ancillary services, and availability of specialized physicians).

The second study (Saeed & Mohamed; 2002) evaluated factors which the patients believed would encourage, discourage or have no impact on PHC center use among 540 clinic attendees, aged 15 years and more, during a 1 month period at selected centers in Riyadh. Data were collected using a self administered questionnaire which asked participants about their views on 21 factors, and if those factors encouraged, discouraged or had no impact on PHC centers services use. The results showed that patients' gender, education and occupation were the most important factors affecting utilization of services, and encouraging factors associated with health care utilization were manpower factors (mainly the Arabic speaking health team, doctor and free service), discouraging factors associated with health care utilization were: crowded

health centers located near public services, and factors with no impact on health care utilization were: age of patients

Patterns and Factors Associated with Old adult PHC Services Utilization In Jordan

An extensive review of literature revealed few studies that addressed PHC services utilization patterns and the factors associated with such utilization in Jordan, specifically among older adults. However, studies have been conducted that targeted the general health of the population, health status and utilization of health services by older adults, satisfaction with health services, insurance coverage for health services, and utilization of specialty health services.

Mahasneh (2000) described the health status of 420 older adults, aged 60 year and older, who lived in Amman city, Jordan. Data were collected using an interview questionnaire in the house of the participants. The researcher found that the majority of older adults in Amman live within a family unit and frequently had someone assist them. The majority of the participants experienced chronic health difficulties and many did not have sufficient health insurance to meet the expenses of health services. The income they survived on was mostly from retirement funds and their families.

In terms of health status and utilization of health care services, Taani (1995) conducted a cross-sectional study that examined health status and health services use by 216 older adults over 60 years of age, who lived in the city of Irbid. Data were collected using household interviews and a structured interview guide. The Duke University Health Profile was used to assess health status. The findings revealed that advanced age was greatly associated with poor health status, which in turn was associated with high use of health services. Approximately 40% of the study participants made three visits or more to health services in the past 12 months, and just about 40% made 1 to 2 visits to health services. However, about 20% did not visit a

health service by any means throughout the past 12 months preceding the interview. Also, the findings demonstrated that 86% of the sample experienced a minimum of one health problem throughout the preceding 12 months.

In the year 2000, the Jordan Ministry of Health conducted the Jordan Health Care Utilization and Expenditure Survey (JHUES) to obtain reliable information for drafting policies to advance the quality of health care services accessible to the general population. The survey used a sample of 8306 households, which included data on 49,543 household persons, from which 8306 participants were randomly chosen. Regarding the outpatient care analysis, the results revealed that: Jordanians in the JHUES sample used 3.55 outpatient visits per capita yearly, females used more visits (3.89 visits) yearly than males (3.21 visits), possibly because of fertility, participants in the age group 15 years and below had the highest utilization rate (4.35 visits) yearly. In contrast, those in the age group of 15 - 44 years had the lowest utilization rate (2.94 visits) yearly. For those in the age group of 45-59, the utilization rate were close to the general average (3.42 visits) yearly, however, for those in the age group of 60 years and more the rate of utilization decrease a little (3.29 visits) yearly. Education and income were negatively associated with outpatient visits, no difference in the rate of outpatient care utilization among unemployed participants and those not in the labor force versus full time workers, those with insurance coverage had utilization rate (3.84visits) higher than those without insurance (3.11visits); and participants who indicated that their health status was less good than that of their age group had the greatest rate of utilization across the demographic groups (7.75 visits). Those who indicated their health as similar to that of their peers had a utilization rate (3.41visits), and those who rated their health as better had a utilization rate of (2.72 visits) yearly (MOH, 2000).

Regression estimates recommended that, holding other factors constant: females were more likely than males to use outpatient care, age was negatively associated with the probability of using outpatient care, persons in poor health relative to their peers, urban residents, and full-time workers were more likely than others to use outpatient care, and income and education were not associated with outpatient care use. Also, about half (49 %) of outpatient visits took place at MOH facilities, 40 percent took place at private facilities, and the remaining 11 percent were divided between the JUH, RMS, NGO's, and UNRWA. Outpatient visits by those living in rural areas, the illiterate, and the poor were much more likely to take place at MOH facilities than at any other facility (61%, 69%, and 66%, respectively) (MOH, 2000).

In term of out-of-pocket expenditures, on average, Jordanians pay JD32.77 per annum on outpatient care, of which 75 percent is spent on medications, with older adults spending 83 percent. Out-of-pocket expenses are greater for females (JD37) than males (JD28). Out of pocket expenditures appear to be positively associated with age, region, and income, with urban residents spending twice what rural residents spend. Out-of-pocket expenditures are negatively associated with education; uneducated Jordanians spend twice as much as the best educated, and the uninsured spend twice as much per year as the insured. (MOH, 2000).

Ekman (2007) examined insurance plans and their relationship with utilization, utilization intensity and personal expenditures for health care. He used the national household survey data gathered in 2000 with a sub-sample of about 8,300 individuals. He found that approximately 60 % of the people in Jordan have some kind of health insurance, although there were different levels of coverage based on income groups. Insurance coverage was found to enhance utilization intensity and decrease out-of-pocket expenses.

Petro-Nustas (2001) conducted a descriptive study to assess what beliefs and factors contributed to utilization of mammography among a convenience sample of Jordanian women. Women who had a mammography at a diagnostic clinic and private radiology screening in Amman over a three month period were eligible for the study. Current utilization of mammography was predicted by: women's older age, reading or hearing about mammography, receiving information about breast tumors from friends. Factors that predicted past mammography utilization were: information about breast tumors from the media, personal history or family history of breast tumors, and receiving information about mammograms from family members.

Patterns and determinants of maternity services utilization have also been studied in Jordan (Abbas & Walker, 1986; Alkhaldi, 2008; Obermeyer & Potter, 1991; and Shakhatreh, Abbas & Issa, 1996). For example, Abbas and Walker (1986) found that the antenatal services use was significantly associated with: female education level, increasing age of a female, length of marriage, 4-6 pregnancies, and small distance to a health facility. While, Cost of services and time involved in traveling to services were associated significantly with non-use.

In 2008, Alkhaldi sought to estimate predictors of maternal health care use in rural Jordanian villages using the Aday-Andersen model for health services utilization as conceptual framework. The researcher found that 82.4% of females received at minimum one antenatal care visit. Individually, significant factors predicting antenatal health care utilization were: village of residence, education, parity, and health insurance. Quality of health care factors that significantly predicted antenatal care utilization were: clean facilities, and respectful treatment. Logistic regression estimates indicated that factors that influenced use of maternal care were: living in southern

villages (OR = 4.7) and availability of transportation (sometimes (OR = 3.2) and never (OR = 2.4).

Also, Hasna (2006) addressed the utilization of family planning services in Jordan using qualitative and quantitative methods and four clinics with diverse models of provision in the Zarqa governorate of Jordan. Focus group discussions, service statistics, and clinic observations were used to compare patterns of utilization and to estimate the weaknesses and strengths of the diverse models of provision. The results showed that family planning provision is still fragmented in Jordan and depend on the viewpoints of providers. Recommendations focused on service coordination, and educating males, so that family planning opportunities would be consistent with other countries of the developing world and the Middle East.

In addition to studies on utilization, Alhusban and AbuAlRub (2009) sought to bring understanding of people's primary and secondary nursing health care services experiences and their satisfaction with the services. The study found that satisfaction with nursing care was moderate, experiences of nursing care were positive, female patients were more satisfied with nursing care than male patients, gynecological patients were more satisfied than medical and surgical patients, and patients in semi-private hospitals were more satisfied than those in public hospitals.

In summary, in Jordan it is essential to understand individual PHC experiences (before or in addition to their satisfaction). Specifically, for older adults, it is important to know their needs and the range of services available to meet their needs. Integration and coordination of older adults care must also be examined in order to evaluate the PHC system services adequacy for them.

Conceptual Framework

Many models have been developed to understand factors affecting the "sick role" and how people make choices regarding the use or non-use of health care services. Such models attempt to identify and organize potential interacting variables. There are two main groups of models: The first group consists of pathways models which depict the disease behavior process and the diverse steps in decision making process. The second group consists of the determinants models which focus on a set of determinants or explanatory variables which are connected with the selection of diverse forms of health services (Kroeger, 1983).

National health surveys have played a significant role in the advance of research about health care services. Such surveys have contributed in the development of concepts, methods, and health policy relevance. The Behavioral Model of Health Services Use is considered one product of these surveys (Andersen, 2008).

Andersen's Behavioral Model of Health Services Use (Andersen, 1960s) was chosen as a conceptual base in this study of PHC services utilization among older adults in the Irbid governorate of north Jordan because: (a) this model is extensively adopted as a conceptual framework for examining health care services use, and it is the most widely used theoretical and practical approach in utilization research (Bellon, Delgando, DeDiosLuna & Lardelli, 1999); (b) it is the analytical model most frequently used in studies of the health care services use by older adults (Wan, 1989), and (c) it provides a guide for the selection of the factors and variables used in the present study.

The model was at first developed in the late 1960s: (a) to understand why families use health care services, (b) to describe and evaluate equitable access to health care, and (c) to develop policies to support equitable access (Andersen, 1968), and has since undergone four phases of development and a fifth emerging phase.

Andersen’s Behavioral Model of Health Services Use at first focused on the family as the unit of analysis, however, in following work Andersen moved to the person as the unit of analysis as it was difficult, at the family level, to develop measures that took into account the possible heterogeneity of family members. The model was originally designed to clarify formal personal health services use rather than the interactions that took place as people received care -- or on their health outcomes (Andersen, 1995). The original behavioral model (the model of 1960s) suggested that the public's health services use was a function of their predisposition to use services, the factors that permitted or hindered use, and their need for care. The original model, from the 1960s, is shown in Figure 1.

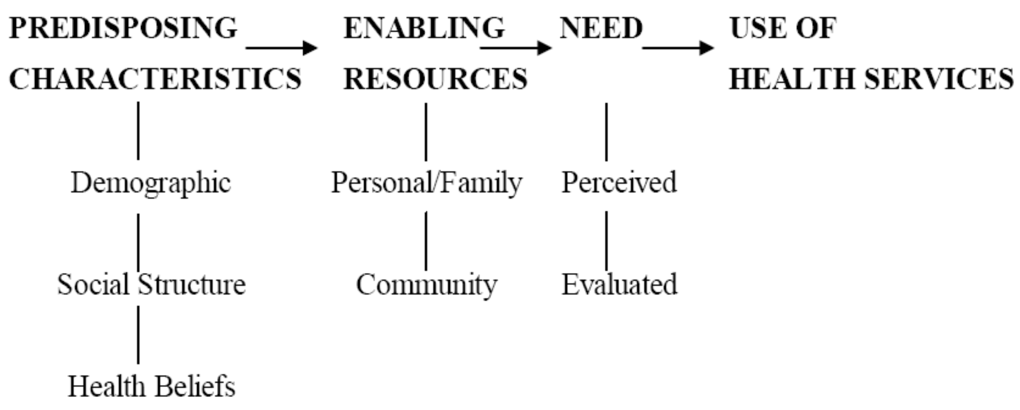


Figure 1. Andersen's Original Behavioral Model of Health Service Use (Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health Social Behavior,* 36, 1-10).

In the model of the 1970s (Phase 2) the health care system was explicitly included, because of the significance of national health policy and health system resources and organization as important determinants of peoples’ use of services -- in addition to changes in those use patterns over time. Other improvements in this phase included further delineation of the measures of health services use, including type, site, purpose, and coordinated services received in an illness episode. Also, an explicit

outcome of health services --- consumer satisfaction was added in Phase 2 (Andersen, 1995).

Phase 3 of the model (1980s – 1990s) added factors in the external environment (political, economic and physical) as inputs for understanding health services use. It also added personal health practices such as diet, exercise, and self care as factors that interact with formal health service use to influence health outcomes (Evans & Stoddart, 1990).

Phase 4 of the model (1990s) emphasized the dynamic nature of a health services use model that also includes health status outcomes (Patrick, Donald, Jane, Miquel, Carol & Thomas, 1988). This model represents the multiple influences on use of health services and therefore on health status. It also includes a feedback to account for the fact that outcome, in turn, influences subsequent predisposing factors and perceived need for services, in addition to health behavior (Andersen, 1995).

As can be seen in Figure 1, the Phase one model proposed that a person's access to and use of health services is a function of three factors; predisposing factors: demographic (gender and age), social structure (occupation, education, ethnicity, culture social networks and social interactions), and health beliefs (values, attitudes and knowledge that persons have concerning and towards the health care system). Enabling factors: personal and family (the means and know how to access health services, travel, a regular source of care, extent and quality of social relationships), financial (health insurance, income), community (waiting time, existing health personnel and facilities) and potential additions (psychological characteristics and genetic factors). Need factors: immediate cause of health service use, from health problems (current or chronic) and functional problems that create the need for health care services, cognitive impairment, perceived health status and evaluated health status.

Andersen identified perceived health status in the model because it was thought that it may better predict care seeking and adherence to a medical regimen. Evaluated health status, in contrast, reflects the judgment of professionals regarding a person's health status and their need for medical care (Andersen, 1995). Evaluated need may also better predict the kind and amount of treatment that will be given after a patient has presented to health care provider (Andersen, 1995).

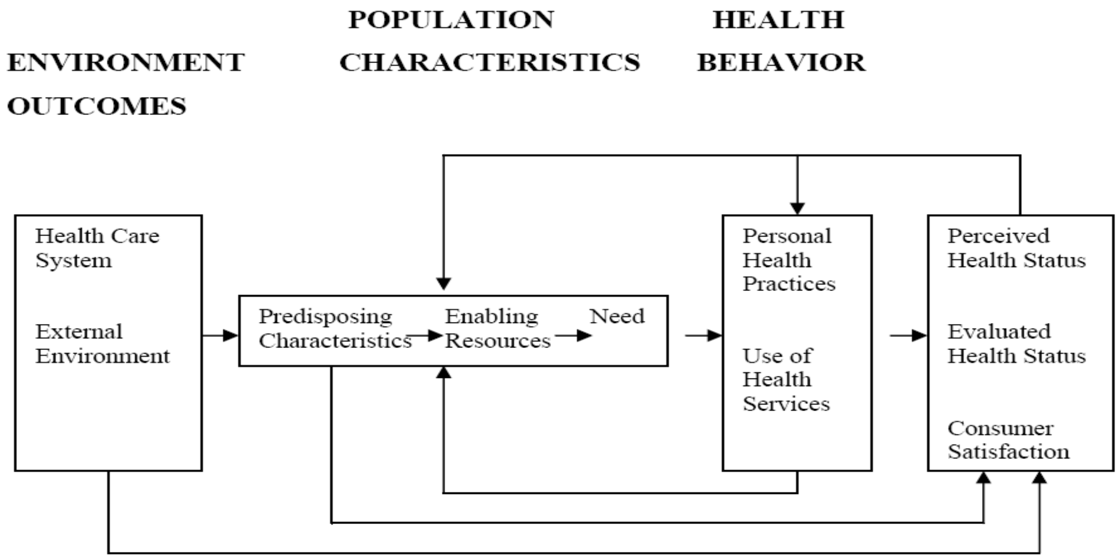


Figure 2. The Behavioral Model of Health Services Use (Phase 4) (Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter?. *Journal of Health Social Behavior,* 36, 1-10).

As a result of emerging issues in health care policy and the delivery of health care services, feedback from colleagues, analysis of prior versions of the model, and improvements in research methods, revisions of the model have continued. However, the basic components of the model have remained (Andersen, 2008). The emerging Phase 5 model (2000s) focuses on both personal and contextual determinants (Andersen & Davidson, 2007). The contextual characteristics are evaluated at an aggregate level and comprise health organization & provider-related factors and

characteristics of society. The main components of contextual characteristics were divided into three groups of factors;

- predisposing (e.g., community age structure);
- enabling (e.g., supply of facilities and medical personnel);
- need for personal use of health services (e.g., morbidity, mortality and disability rates).

In addition, in the Phase 5 model, the process of medical care was added as a kind of health behavior (in addition to health services use and personal health practices). The medical care process is depicted as an interaction of the provider and the patient in during medical care delivery. The measures of this process may involve:

- Prescriptions;
- patient counseling;
- test ordering;
- quality of communication between the provider and patient

Figure 3 illustrates Phase 5 of the model.

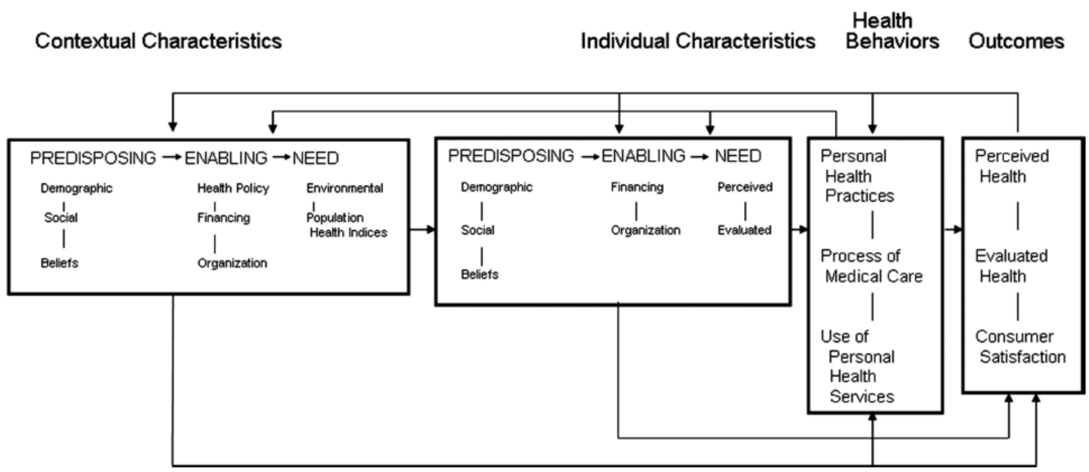


Figure 3. Phase 5: A Behavioral Model of Health Services Use including Contextual and Individual Characteristics.
(Andersen, R. M. (2008). National health surveys and the Behavioral Model of Health Services Use. *Medical Care,* 46, 647–653).

For the current study we constructed an analytic framework based on the Andersen (1960s) Phase 1 model. As can be seen in Figure 4, the analytic study framework includes three groups of factors potentially associated with the PHC services utilization of older adults in Jordan: predisposing, enabling and needs factors.

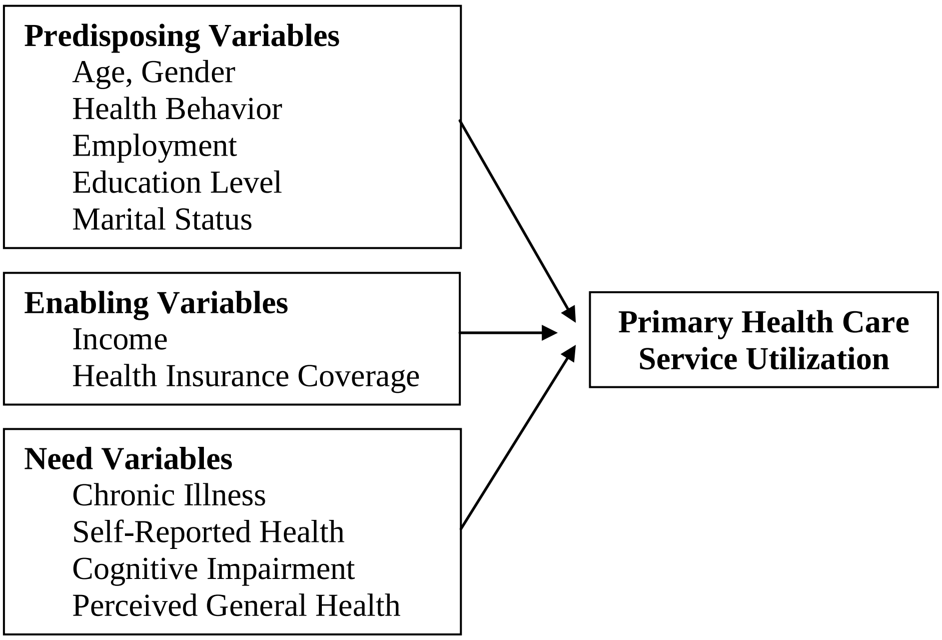


Figure 4. Schematic Representation of the Study Analytic Theoretical Framework with Study Variables Based on Andersen's Behavioral Model of Health Services Use (Andersen, 1960s).

Summary

The history of Health Service Research began with Florence Nightingale. The concept of Health Service Research is constantly developing and has been defined in a different ways by different researchers and organizations. The vital objective of Health Service Research is to offer unbiased, scientific proof to influence policies on health services at all levels, in order to develop and improve the status of community health.

The utilization of health care services is defined as "The process of seeking professional health care and submitting oneself to the application of regular health services, with the purpose to prevent and treat health problems" (Scheppers, Van

Dongen, Dekker, Geertzen and Dekker, 2006, p. 326). Self-report is one of primary methods used to collect data about persons' health status and health care services use.

According to WHO, aging is a progressive alteration process in the biological, psychological and social structure of individuals. When establishing a description of 'older adults,' the actual age used varies among researchers and from country to country. In this study, the lower age limit for older adults was 50 years.

In Jordan, Ministry of Health provides a range of preventive, curative and rehabilitative services to older adults throughout its health care centers and hospitals, which exist in all governorates. However, specialized health services for older adults are not available.

There have been many relevant worldwide studies on the diverse kinds of health care services use patterns and the factors associated with such utilization among older adults. Most of these studies were conducted in the developed countries. Some studies used cross-sectional designs to collect the data but other studies used secondary analyses from large public datasets. Andersen's model has been used effectively in many studies with different designs (Wolinsky, 1994). Most of the studies used older adult samples of both genders. The reference periods to examine the primary health care services utilization were different among each study, including: during the past 1 month, 3 months, 6 months, 12 months, 24 months, and 3 years. Also, these studies used different lower age limits in the definition of older adults, these lower limits included: 50 years, 60 years, 64 years, and 65 years. Regarding the primary health care service utilization patterns, previous studies examined different utilization patterns and found different levels and patterns of older adult primary health care services utilization among countries. The results of the studies reflected inconsistency regarding the factors associated with the primary health care services utilization.

In the Arab Countries there are few studies that examined the patterns of primary health care services utilization and associated factors. For Jordan, specifically, there is a scarcity of such literature, especially studies that focused on older adults. However, various studies of primary health care services utilization in Jordan has focused on the patterns and determinants of maternity services utilization, utilization of family planning services, and some studies focused on understanding peoples' primary and secondary health care services experiences in term of their satisfaction regarding the services. Therefore, Andersen's Behavioral Model of Health Services Use (Andersen, 1960) was chosen as a theoretical base for this study.

Chapter 3

Methodology

Overview

This section will describe the methodology and procedures of this dissertation. The subsequent parts will be discussed: (a) study design, (b) setting, (c) sampling and selection of participants, (d) study variables, (e) instrumentation, (f) ethical consideration, (g) data collection procedure, (h) pilot study, and (i) data management and statistical analysis plan.

Study Design

A cross-sectional study design was used to examine PHC services utilization patterns, and to identify factors that were associated with and predicted the possibility of health care utilization/ non-utilization in the past 1, 6, and 12 month period. Participants were older adults aged 50 and more, living in Irbid governorate in the north part of Jordan during the study period in the year 2011.

Setting

The study was conducted in the catchment areas associated with three comprehensive primary health care centers situated in urban and rural areas within Irbid governorate in the north part of Jordan.

Irbid is one of the Jordan governorates and it is situated 80 km to north of Amman, Jordan's capital. Irbid city is the capital of the Irbid governorate. After the Amman governorate, it has the second largest population in Jordan and the greatest population density in the country (Wikipedia Encyclopedia, 2011) (See Figure 5). Irbid Governorate consists of nine departments called Alweya which is plural of Liwaa. Many of these departments are within the sphere of influence (and constitute districts) of metropolitan Irbid (Wikipedia Encyclopedia, 2011). Populations estimates for 2010

put the population of the Irbid governorate at around 1,088,100 people, which constitutes approximately 17.8 % of the total population of Jordan which is 6,113,000 (Jordan Department of Statistics, 2010). The Irbid governorate was chosen for this study because it is more convenience for the researcher as no studies were done else where.

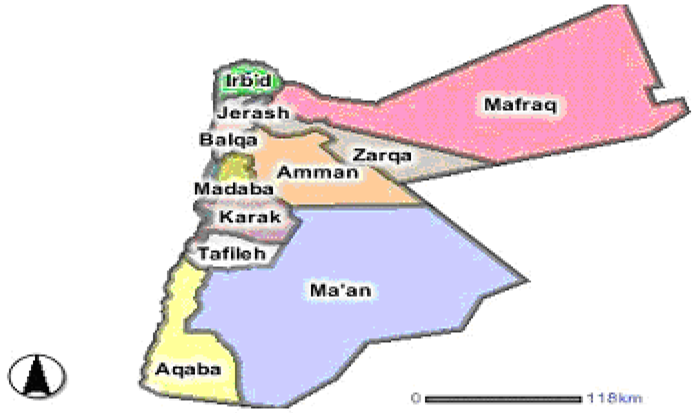


Figure 5. Jordan National Map and Irbid Governorate (Source: Jordan MOH, 2008)

In the Irbid governorate there are 133 primary health care centers. These centers are divided into 10 comprehensive primary health care centers which provide services from 8 am to 4 pm, and most of these health centers serve large numbers of people and offer many preventive and curative health care services. In addition, there are about 123 primary health centers and village centers. These types of centers provide services from 8 am to 2 pm, and provide services to people within their villages, refer people to the comprehensive centers which, in turn, can refer patients to hospitals (Jordan Ministry of Health Irbid Health Directorate, 2010). These centers (comprehensive and primary health care centers) are the only rural primary health facilities choices offered to the people who live in those areas (See Figure 6).

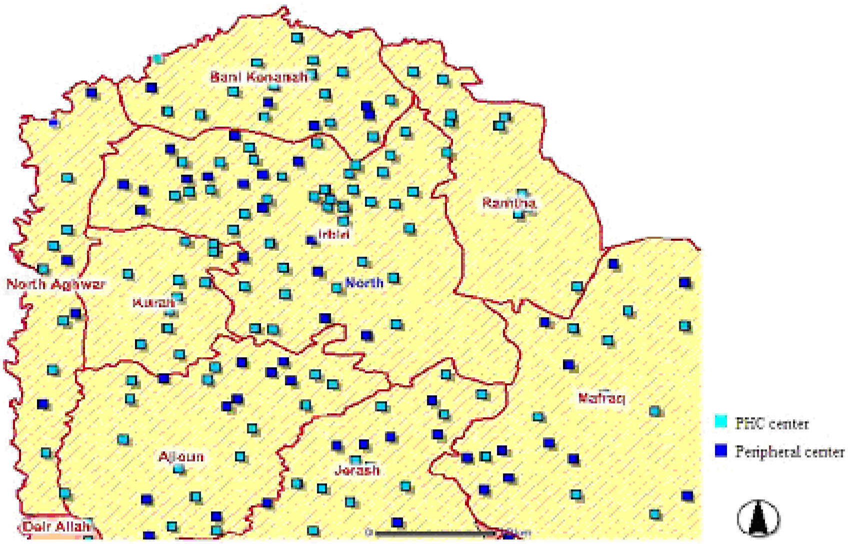


Figure 6. PHC Centers in the Irbid Governorate (Source: Jordan MOH, 2008)

A catchment area is described as the geographical region served by a special health facility or government institute (Webster's New World College Dictionary, 2010). This study was conducted in the catchment areas associated with three comprehensive primary health care centers. These areas are rural and situated in different locations of the Irbid governorate and they were selected randomly to be sure that the study sample was as representative of the Irbid governorate as possible (see Figure 7). The three catchments areas chosen were:

En-Nuaymeh area: It is part of the Bani Ibad department (Alweya) which is situated in the southern part of Irbid. The population of this area is about 14583, mainly Jordanians of low to middle socio-economic status (Jordan Ministry of Health Irbid Health Directorate, 2010). This area is covered only by En-Nuaymeh comprehensive primary health care center services. This center is located at the middle of the En-Nuaymeh area and provides general medicine, pediatric, genecology, dentistry, x- ray, laboratory and maternity and child health services (Jordan Ministry of Health Irbid Health Directorate, 2010).

Turrah and Shajara areas: They are part of the Ramtha department (Alweya) which is situated in the eastern part of Irbid. The populations of these areas are about 17399 and 13507 respectively; mainly Jordanians of low to middle socio-economic status (Jordan Ministry of Health Irbid Health Directorate, 2010). .These two areas are served by two primary health care centers for each area, in addition to the Sahel Huran comprehensive primary health care center. This comprehensive center is located between the two areas and provides general medicine, pediatric, medical, genecology, dermatology, family medicine, dentistry and laboratory services (Jordan Ministry of Health Irbid Health Directorate, 2010).

Al-Mazar Al-Shamali, Dair Yosef and Habaka areas: They are parts of the Al-Mazar department (Alweya) which is situated in the southern part of Irbid. The populations of these three areas are about 14201, 6714 and 2684 respectively, mainly Jordanians of low to middle socio-economic status (Jordan Ministry of Health Irbid Health Directorate, 2010). These three areas are served by primary health care centers, one for each area, in addition to the Alfaruq comprehensive primary health care center. This comprehensive center is located in Dair Yosef area and provides general medicine, pediatric, gynecology, ENT, orthopedic, family medicine, maternity and child health, x- ray, dentistry and laboratory services (Jordan Ministry of Health Irbid Health Directorate, 2010).

Sampling and Selection of Participants

In this study the target population consisted of all eligible older adults who were covered by PHC centers services of the Irbid governorate of north Jordan. The accessible population consisted of all older adults who lived within the catchments areas of three comprehensive health care centers in Irbid governorate at north Jordan.

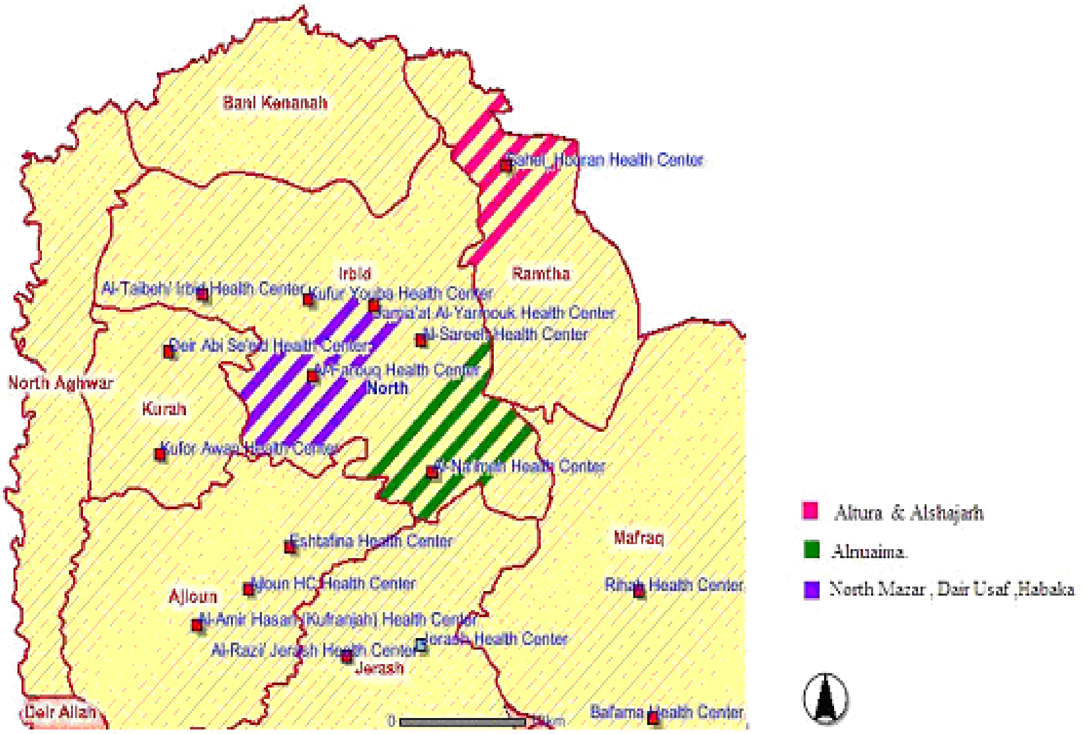


Figure 7. Map of Irbid Governorates Showing the Three Catchment Areas of the Study (Source: Jordan MOH, 2008)

It is difficult to provide recommendations about the sample size needed to have adequate statistical power in binary logistic regression (Warner, 2007). Peduzzi, Concato, kemper, Holford and Feinstein in (1995) have suggested a minimum N that is at least 10 times K, where K is the predictors' number in the model. However, this sample size is the minimal and a larger N may be needed to have acceptable statistical power (Warner, 2007). Sample sizes of less than 100 should be avoided and 500 observations should be adequate for almost any situation (Long, 1997).

The number of predictors in this study was 19 predictors. So, using the criteria identified by Peduzzi et al. (1995), the minimum sample size needed for this study was 190 participants.

Table 3. The Sample Size and Number of Households from each Catchment Area

Department	Catchments Areas	Population	Number of households	Number of participants in the study
Ramtha	Turrah	17,399	32	48
	Shajara	13,507	23	37
En-Nuaymeh	EnNuaymeh	14,583	34	40
Al-Mazar	Al-Mazar Al-Shamali	14,201	25	39
	Dair Yosef	6,714	12	19
	Habaka	2,684	5	7
Total		69,088	131	190

A multi-stage sampling design was used as follows:

1. The first stage involved selecting 3 of the 10 comprehensive primary health care centers within the Irbid governorate. These health care centers were chosen randomly to represent geographical areas of the Irbid governorate.
2. The second stage of the sampling process involved the selection of households from the areas that were within the scope of the three comprehensive primary health care centers services. They were selected by using a convenience sampling method. To select a representative sample of the older adults, 50 years or older, from the three catchments areas, a proportional sampling method was used to decide the sample size from each catchments area because the population varied by catchments areas (See Table 3).

3. Finally, in each chosen area the researcher introduced himself to the household, and asked if all members of the household over 50 years of age would agree to participate in the study and be interviewed by a research nurse. The inclusion criteria: (1) can understand and comprehend the Arabic language, (2) able to tolerate a 25-minute interview, and (3) age 50 years or older. The exclusion criterion was: unable to answer questions because of illnesses or disabilities (e.g., dementia or mental retardation).

Instruments

Based on a literature review, there was no well defined tool that assessed and included all the factors that may influence health care service use. However, some studies used data from the national health surveys of their countries to study health care service use.

The questionnaire in this study addressed:

- patterns of PHC service utilization:
- predisposing factors: Age, gender, health behavior measures (tobacco use), employment status and education level;
- enabling factors: Income and health insurance coverage;
- need factors: Chronic illnesses, cognitive impairment, and perceived general health status.

The questionnaire consisted of three main parts:

Socio-Demographic Questionnaire.

This brief questionnaire was used to collect necessary individual data which reflected predisposing factors (age, gender, marital status, educational level, employment status, tobacco use), enabling factors (health insurance and monthly

income) and need factors (presence of chronic illness). These demographic data were extracted together with reported PHC services utilization patterns within the past 1, 6, and 12 months (see Appendix A).

Elderly Cognitive Assessment Questionnaire (ECAQ; (Kua & Ko, 1992).

The ECAQ is a 10-item cognitive test which was developed in Singapore to screen for dementia (Kua & Ko, 1992). The ECAQ items were taken from the Mini-Mental State Examination (MMSE) and the Geriatric Mental State Schedule (GMS) (Kua & Ko, 1992). The ECAQ was developed by Kua and Ko, who believed that the majority of instruments developed in the West, where literacy is high, were not appropriate for cohorts of older adults in Singapore due to cultural dissimilarities or low literacy. The ECAQ is a qualified screening tool which may be used in society-dwelling older adults without cognitive symptoms (Sahadevan, Lim, Tan, & Chan, 2000).

The 10 items of the ECAQ are categorized under three categories: memory (3 items), orientation (6 items) and memory recall (1 item). Every item has a value of 1 for every right response and the highest score is 10 points. Participants who had scores of 5 and less were recognized as having cognitive impairment (Kua & Ko, 1992). This 10-item questionnaire demonstrates a specificity of 91.5%, sensitivity of 85.3%, positive predictive value of 82.8%, and overall miscalculation rate of 10.5% (Kua & Ko, 1992).

The ECAQ has been shown to be an applicable instrument to assess the cognitive impairment of older persons living in developing countries (Kua and Ko, 1992). There is no age or education adjusted cut-off values for the ECAQ. However, even with such limitations, ECAQ is a strongly validated cognitive screening examination that was custom-made for local older adults, and may be practically

administered to screen for cognitive impairment in a busy clinic (Jih, 2002) (see Appendix B).

12-Item Short Form Health Survey Version Two (SF 12v2 ;(Ware & Sherbourne, 1992).

The SF-12v2 is the latest subset scale of the SF-36v2 health-related quality of life (HRQOL) measure (Ware & Sherbourne, 1992). The SF12v2 questionnaire (entitled “Your Health and Well-Being”) is an extensively used and well recognized quality of life survey which examines both the physical and emotional domains of health and well-being (Cheak-Zamora, Wyrwich, & McBride, 2009). The SF12v2 was made public in 2002 and is believed to be an improvement over the preceding SF-12v1 (Ware, Kosinski, Turner-Bowker, & Gandek, 2002).

This questionnaire is a broad health status tool that assesses HRQOL by asking 12 Likert scale questions that evaluate eight domains: physical function, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health (Ware, Kosinski, and Keller, 1996). These eight domains are categorized into physical (PCS) and mental (MCS) component summary scales using established norm-based scoring (NBS) algorithms (Ware, Kosinski & Keller, 1998).

The SF-12v2 as a universal measure of health status does not aim at a particular age, illness, or treatment group. Therefore, it has been used with general and specific populations, but it is not meant to be a comprehensive survey of health (Ware, Kosinski, Turner-Bowker, Sundaram, Gandek, & Maruish, 2009). The SF-12v2 is offered in two forms, each one covering a particular recall period. The standard or 4-week recall form, used in the current study, asks respondents to answer the questions based on how they felt or acted throughout the past 4 weeks. There is also an acute or 1-week recall form (Ware et al., 2009). In this study the SF-12v2 Health Survey Standard, Algeria (Arabic) was used (see Appendix C). .

Reliability and Validity of SF-12v2 Survey.

The questionnaire has undergone rigorous testing during its development to ensure that it is a reliable and valid instrument to measure self-rated quality of life (Ware, Kosinski, Turner-Bowker & Gandek, 2007). Several studies have supported the validity and reliability of the SF-12v2 Health Survey (Cheak-Zamora, Wyrwich & McBride, 2009; Fong, Lam, Mak, Lo, Lai, Ho & Lam, 2010; and Montazeri, Vahdaninia, Mousavi, Asadi-Lari, Omidvari &Tavousi, 2011). Two studies with adults were reported. Cheak-Zamora, Wyrwich, and McBride in (2009) estimated the validity and reliability of the Medical Outcomes Study Short-Form version 2 (SF-12v2) in the 2003–2004 Medical Expenditure Panel Survey (MEPS). The information were gathered in the self-administered mail-out survey and face-to-face interviews of the MEPS (n = 20,669 adult participants aged18 years and more, and live in the United States). The findings reflected that both component scores of the SF-12v2 have adequate reliability and validity; MCS and PCS had high internal consistency reliability (a > .80). PCS demonstrated a high test-retest reliability (ICC = .78), and the MCS showed moderate reliability (ICC = .60). PCS had high convergent validity for EQ-5D items (excepting self care) and physical health status (r>.56) and the MCS showed moderate convergent validity on EQ-5D and mental health items (r>.38). PCS differentiated between groups with different physical and work limitations and MCS differentiated between groups with and without cognitive limitations.

A cross-sectional study was carried out in Tehran, Iran in 2011, to examine the Iranian version of SF-12v2 psychometric properties among 3685 a general Iranian population (aged 18 years and over). The results showed that both summary measures of the SF-12v2 had adequate reliability. Cronbach's α for the Physical Component Summary (PCS-12) was 0.87, and for the Mental Component Summary (MCS-12) was

0.82. Known-groups comparison reflected that the SF-12v2 distinguished well between subgroups of persons who differed in their health conditions, between males and females and differing educational status and age ($P < 0.05$). Furthermore, SF-12v2 showed a good convergent validity. The findings from correlation analysis verify that the physical functioning, role physical, bodily pain and general health subscales associated higher with PCS-12, whereas the vitality, social functioning, role emotional and mental health subscales associated higher with the MCS-12. Lastly, the exploratory factor analyses and confirmatory factor analyses confirmed the two-factor structure (physical and mental health) of the SF-12v2, accounting for 59.9% of the variance (Montazeri, et al., 2011).

Ethical Consideration

Before conducting the study, the required permission for conducting the study was obtained from the University of Jordan School of Nursing ethical committee, in Amman, and permission from the Jordan Ministry of Health ethical committee. Permission was also granted by the Jordan MOH to use the database of the health directorate of Irbid. Permission to use the ECQA instrument was obtained from the instrument developer, and permission to use the standard, Algeria (Arabic) SF-12v2 was obtained from Quality Metric Incorporated (License agreement # CT130430 / OP011094). Copies of all the approval letters can be found in Appendix D, E, F, and G

All participants were notified that their participation in the study would be completely voluntary, without any risks, and that they could withdraw from the study at any time. Also, they were informed that if they decided not to participate, it would not affect their care at the health center. In addition, they were informed about the aims of the study, the benefits of their participation, their rights as participants, the opportunity to ask questions about the study, and the name and telephone number of the researcher.

All participants were informed that data collected would be treated with anonymity and confidentiality throughout the study and all individual responses would be kept as research files identified with numbers only, not names. Also, anonymity of participants and confidentiality of their responses would be protected by not reporting the participant's identities, by reporting the findings in comprehensive way, and by protecting and saving the raw data after the analysis process in both hard and electronic forms in a safe place (locked file cabinet and password protected computer).

Finally, personal informed verbal consent of the participants was obtained before conducting each interview, and participation in the interview was also considered as consent for participation in the study.

Data Collection Procedure

About 131 households were successfully interviewed, and within these households, 190 older adults were successfully interviewed face to face. Data were collected by the researcher and a female interviewer-research assistant, using questionnaire-guided interview techniques, for a 3-month period from 1 January 2011 to 30 March 2011. The research assistant had a baccalaureate degree in nursing, and completed her training before data collection began. The training session was organized by the researcher, and it included a discussion about the interview techniques, and content of the questionnaire. Training was accompanied by the provision of a study packet, with the outline for the session, and all data collection tools.

Data collection in each catchments area of the sampled comprehensive health centers began with the researcher introduced himself to the household and asking if all members of the household over 50 years of age would be willing to participate in the study and be interviewed by a research nurse. Then, after obtaining the verbal informed consent of the household participants aged 50 years, the researcher and the nurse

research assistant conducted the interviews, using the questionnaire and administered the ECAQ and the SF-12v2 assessment tools.

At the beginning of each interview the researcher started by informing the participants about the purpose and importance of the study, the status and identity of the researchers, and that their participation will be voluntary and confidential. Also the participants were not asked to identify themselves in order to build a trust relationship with them. Then, the researcher started the interview by asking questions regarding the socio-demographic data such as age, health insurance, and tobacco use. Next, the researcher assessed the cognitive ability of the participant using the ECAQ tool. If the scores were above 5, participants were deemed to have no cognitive impairment and the researcher continued with the participant. If the ECAQ scores were 5 or lower, participants were deemed to have cognitive impairment, and the researcher continued with the interview, but asked the participant's caregiver to confirm the responses. Because age was the main demographic factor that influenced the recall accuracy of self-report health care use data, it was necessary to consider the cognitive status of the participants (Bhandari and Wagner, 2004).

Next, the researcher continued the interview by asking questions regarding the PHC services utilization patterns. Finally, questions regarding the needs factors such as chronic illness self-report and perceived general health status were introduced. The procedures were organized so that general description of the study and socio demographical related questions were addressed first, which were less invasive, followed by the cognitive ability of the participant and PHC services utilization patterns questions, and then the SF-12v2 questions, which were more personal, at the end of the session.

When the researcher asked the older adult participants about their use of PHC centers' services in their regions during three periods (past month, past 6 months, and past 12 months), important historical events was used to help them to remember and confirm their utilization of health centers' services. For example, when the researcher asked the older adult participants about their use of the PHC center service during the past 6 months, the historical event for that period of time was "Ramadan" (the fasting month for Muslims), which helped them focus on the time period in question.

On average, each interview took about 25 minutes to complete all the questions. During each interview, the researcher took a leading role in order not to confuse the older adult participants while the research assistant had a more passive role. Also, during the interview if the older adult participant seemed to become fatigued, a short 5 minute break was considered; though none of the older adult participants in this study asked for a break. At the end of each interview, the participants were asked if they had any questions or wished to add any comments.

Validity of Data

Three steps were taken to enhance the content validity of the study questionnaires. First, a relevant literature review was done with the purpose of choosing a number of variables for the study that might influence older adults' utilization of PHC services. Second, the content validity of the SF12v2 for this study was conducted by a panel of three academic staff. Third, the questionnaire was pre-tested in a pilot study.

The following is a description of both the content validity of the SF12v2 Health Survey Standard, Algeria (Arabic) tool and the pilot study.

Content Validity of the SF12v2 Health Survey Standard, Algeria (Arabic).

Evaluating and reporting content validity of a tool is essential. This kind of validity can also help to ensure construct validity and give confidence to both the researchers and readers regarding the tool (Yaghmale, 2003). Content validity refers to the level to which an instrument has a suitable sample of items for the construct being evaluated (Polit & Beck, 2004). Content validity can be taken from three sources which include; the literature, representatives of the relevant populations, and experts (Burns & Grove, 1993).

To establish content validity for SF12v2, an academic panel of consultants was selected (n = 3). Choosing of the panel was dependent on criteria acknowledged in the literature. The selection criteria included having relevant training, work experience, and qualification as content experts (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1985). Additional criteria include publications in refereed journals, national presentations, and research in the topic of interest (Grant & Kinney, 1992).

Davis and Grant's (1993) guidelines to orient consultants to the theoretical underpinning of the study were included in the cover letter that was sent to the consultants. The cover letter sent to the panel member, requesting their participation included: study purpose, description of the tool and its scoring, and a response form. Also, a brief demographic questionnaire was included to provide demographic data about the panel of experts in subsequent publications or reports Appendix H. Consultants were asked to evaluate every question in the tool in terms of its relevancy, accuracy, adequacy, clarity, and representativeness based on a 4-point Likert Scale (1= not relevant to 4= high relevant). A description of these five criteria is represented in Table 4 below.

Table 4. Definitions of Evaluation Criteria Used by Panel for Your Health and Well-Being Tool

Evaluation Criteria	Definitions of the Evaluation Criteria
Relevancy	Having a connection with matter at hand (socially & practically applicable).
Accuracy	The ability of the tool to match the actual value of the quantity being measured.
Adequacy	Adequate to satisfy requirements (measure all the construct dimensions).
Clarity	Clearness of thoughts, construct, and wording (e.g.; not obscured and not confused).
Representativeness	Serving as a typical example.

Reference: (Davis, L., and Grant, J. (1993). Guidelines for using psychometric consultants in nursing studies. *Research in Nursing and Health*, 16, 151-155).

Analysis of Responses.

Analysis of consultants' responses reflected a consensus in their judgments using the five criteria for evaluating the SF12v2 content validity. The mean for accuracy was (M = 3.94) with Standard Deviation (SD= .07), while the mean for clarity of the tool was 3.48 with SD= .50. Table 5 includes the results for all criteria.

Table 5. Panel Content Validity Ratings for Your Health and Well-Being Tool, by Criterion

Criteria	Mean (SD)
Relevancy	3.88 (.14)
Accuracy	3.94 (.07)
Adequacy	3.88 (.14)
Clarity	3.48 (.50)
Representativeness	3.77 (.28)

Note: 1 = Not Relevant; 4 = Highly Relevant

A further analysis was conducted to evaluate the validity of each question of the SF12v2 tool (see Table 6). The results gave additional support for the SF12v2 tool validity, and suggest that it can be used to assess a person's perceived general health status. The analysis reflected an agreement among consultants on the topic of

relevancy, accuracy, adequacy, clarity, and representativeness for the tool in general and for each question of the tool.

There were few suggestions and comments by consultants on the tool questions. For example, consultants suggested an alternative word in the fourth question. All consultants' comments and suggestions were taken into consideration during the interviews; however, no any changes in formatting of the tool it self had been done.

Table 6. Panel Content Validity Ratings for Your Health and Well-Being Tool

Category	**Relevancy** M (SD)	**Accuracy** M (SD)	**Adequacy** M (SD)	**Clarity** M (SD)	**Representativeness** M (SD)
Question 1 General Health	4 (0)	4 (0)	4 (0)	3.6 (0.5)	4 (0)
Question 2 General Health Limitations	3.6 (0.5)	4 (0)	3.6 (0.5)	3 (1.0)	3.6 (0.5)
Question 3 Physical Health Limitations	3.6 (0.5)	3.6 (0.5)	3.6 (0.5)	3.6 (0.5)	4 (0)
Question 4 Emotional Health Limitations	4 (0)	4 (0)	4 (0)	3.3 (0.5)	4 (0)
Question 5 Pain Interference	4 (0)	4 (0)	4 (0)	4 (0)	3.6 (0.5)
Question 6 How are you Feeling	4 (0)	4 (0)	4 (0)	3.6 (0.5)	3.6 (0.5)
Question 7 Social Activity Interference	4 (0)	4 (0)	4 (0)	3.3 (0.5)	3.6 (0.5)

Note: 1 = Not Relevant; 4 = Highly Relevant

Pilot Study.

The definitions of pilot and feasibility studies differ (Arain, Campbell, Cooper & Lancaster, 2010). A pilot study can be defined as small study that helps to design a more confirmatory study (Arnold, Burns, Adhikari, Kho, Meade & Cook, 2009). A pilot study can help to achieve many aims. According to Prescott and Soeken (1989) a pilot study may be conducted to assess : (1) feasibility, (2) adequacy of instrumentation, (3) data collection strategy problems and proposed methods, (4) answering methodological questions, (5) planning a larger study, and (6) for obtaining adequate preliminary data in preparation for submitting a grant (Jairath, Hogerney & Parsons, 2000). When conducting a pilot study, researchers need to be clear about its purpose (Arain et al., 2010).

After obtaining all the required permissions and before the main study, the researcher conducted a pilot study in late December 2010 in the Alnuaima catchment area in Irbid governorate, north Jordan. Using published guidance (10% of the proposed study; Lackey and Wingate, 1998; 10 participants: Nieswiadomy, 2002), the pilot sample size was determined to be 20 subjects (10%).

The pilot study aimed to evaluate significant parameters that are required to plan the major study. For instance: (a) the length of time necessary to complete the interview, (b) resources (e.g. cost), (c) the acceptability of the study by the older adult population, and (d) possible problems and barriers associated with the interview data collection method. As a result of this pilot study some issues were considered before conducting the major study. For example, the pilot study results confirmed that 25 minutes was an adequate amount of older adult participant's time to complete all of the interview questions. Also, order and wording of a number of questions were changed.

Statistical Analysis

Descriptive statistics (frequency and percent distributions, means, standard deviations and medians) were used to describe independent and dependent variables. Scoring of the SF-12v2 required software from QualityMetric Incorporated, Lincoln, RI, Rhode Island, USA. Correlations were conducted (a) to establish associations between the independent and dependent variables, and (b) to identify which variables would enter the logistic regression model. Correlation tests included Spearman’s rho, Point Biserial r, Phi coefficient (Ø), and Cramer's *V* were used depending on the level of measurement for each variable. Three logistic regression models were developed for utilization/non-utilization of PHC services during the past 1, 6, and 12 month period. The probability ($P < 0.05$) was taken as the minimum level of significance. The Statistical Package for Social Sciences (SPSS) version 17 was used for all the statistical analysis of data (SPSS, Inc., Chicago, Illinois, USA). All categorical variables were changed to dummy variables before they were entered into the logistic regression model.

Chapter 4

Results

This chapter describes the study participants, their utilization patterns of PHC services, factors that may be associated with such utilization patterns, and identifies factors that predicted older adults' PHC services utilization. Data were gathered from a convenience sample of older adults using a household interview, administered face to face, with a structured questionnaire and measures of cognitive impairment and health-related quality of life**.**

Characteristics of the Study Sample

For this study, a total of 190 older adult participants, aged 50 and older, were recruited and interviewed in the catchment areas associated with three comprehensive health centers situated in urban and rural areas, within the Irbid governorate in the north part of Jordan. Table 7 depicts the characteristics of the study sample**.**

Predisposing Factors.

The mean age of the participants was 64.6 years (SD = 9.7). There were more males (57.4%) than females (42.6%) participants. Approximately, (88.4 %) of the participants were married, (11.6 %) of them were widowed, and none were single, separated or divorced. In terms of educational level, more than one third (36.8 %) of the study participants indicated that they obtained no education at all, although 42.1 percent of the participants received a primary school education and 21.1 percent received a secondary education and higher. The majority (55.3%) of the participants were unemployed, followed in proportion by those who were retired (41.1%), and currently employed (3.7%). The majority of the participants (71.1%) were non smokers, while 28.9 percent were smokers.

Table 7. Descriptive Statistics of the Predisposing, Enabling and Need Variables of Older Adult Participants (n = 190)

Variables	**%**	**Mean (S.D)**
Predisposing variables:		
Age (in years)		64.6 (9.7)
Gender:		
Male	57.4	
Female	42.6	
Marital Status:		
Married	88.4	
Widow	11.6	
Education Level		
No education	36.8	
Primary school education	42.1	
Secondary & higher education	21.1	
Employment Status		
Unemployed	55.3	
Retired	41.1	
Employed	3.7	
Tobacco User		
Non-smoker	71.1	
Smoker	28.9	
Enabling variables:		
Health Insurance		
Uninsured	6.3	
Insured	93.7	
Income (Jordanian Dinars per Month)		218.2 (88.7)
Need variables:		
Chronic Illnesses		
No chronic illnesses	27.9	
Have chronic illnesses	72.1	
Cognitive impairment		
No cognitive impairment	96.8	
Have cognitive impairment	3.2	
Perceived general health status today		6.61 (1.3)
Perceived general health status in last 1 month		
PCS score		41.28 (11.0)
MCS score		50.46 (7.3)
Perceived general health status in past 6 months		6.46 (1.3)
Perceived general health status in past 12 months		6.64 (1.3)

Enabling Factors.

Most participants (93.7%) had some type of health insurance coverage, though 6.3 percent reported no coverage. The mean monthly household income per participant was about 218.2 JD.

Need factors.

In the majority (72.1%) of the study participants, chronic illnesses were predominantly in attendance, whereas about (27.9%) had no chronic illnesses. Among all study participants, the majority (96.8%) showed no evidence of cognitive impairment, although a small subsample (3.2%) had evidence of impairment. In regard to health status, for perceived general health status on the SF-12v2 for the past 1 month, the mean for the PCS score was 41.28 (SD = 11.0) and for the MCS score it was 50.46 (SD = 7.3). For the perceived general health status today, in the past 6 months, and in the past 12 months, the means were 6.61 (SD = 1.3), 6.46 (SD = 1.3, and 6.64 (SD = 1.3), respectively.

Older Adult PHC Services Utilization Patterns

Table 8 summarizes the frequency of reported PHC services use by the study participants in the past 1, 6, and 12 month period prior to the interviews, which varied in each time period depending on the type of PHC services (medical services and nursing services), and varied between the different time periods. Of the older adults aged 50 years and over included in the analysis, 41 percent used the medical services, and 22.9 percent used the nursing services in the past 1 month period. In the past 6 months, more than two thirds of the participants used the medical services, and more than one third used the nursing services. However, when queried about PHC services used in the past 12 month period almost three-quarters of the participants had used medical services, and almost half had used nursing services.

Table 8. Primary Health Care Services Utilization by Older Adults in the Past 1, 6 and 12 Months.

	Medical services utilization.	Nursing services utilization
	%	%
In the past 1 month	41.0%	22.9%
In the past 6 months	68.4%	31.6%
In the past 12 months	73.8%	44.8%

Factors Associated with the Older Adults' PHC Services Utilization

Table 9 shows the unadjusted relationships between the older adults utilization of the PHC services and the three sets of study variables in the past 1, 6, and 12 month periods. The relationships were assessed by means of computing correlation tests that included Spearman's rho (dichotomous dependent variable and rank independent variable), Point Biserial r (dichotomous dependent variable and continuous independent variable), Phi coefficient (Ø) (dichotomous dependent variable and dichotomous independent variable), and Cramer's *V* tests (dichotomous dependent variable and categorical independent variable with more than two value).

In the Past 1 Month Period.

Regarding the utilization of the PHC services in the past 1 month period, a total of 5 of 13 study variables were significantly associated with PHC services utilization by the participants.

Predisposing Factors.

In term of the predisposing variables, the negative association between the older adult utilization of the PHC services in the past 1 month period and both the education

level and tobacco use indicated that those who were not educated or had a primary school education, as well as non smokers, tended to be PHC services users, (r (190) = - 0.22, p < 0.01) and (r (190) = - 0.16, p < 0.05), respectively. However, older adult utilization was not associated significantly with age, gender, marital status, and

Table 9. Factors Associated with Primary Health Care Services Utilization of Older Adults in the Past 1, 6, and 12 Months.

Variable	Utilization 1 month	Utilization 6 months	Utilization 12 months
Predisposing variables:			
Age	.134	.229**	.205**
Gender	- .093	-.105	- .100
Marital status	.129	.069	.017
Education level	- .220**	- .200**	- .240**
Employment status	.158	.178*	.218**
Tobacco Use	- .162*	- .166*	- .145*
Enabling variables:			
Health Insurance	.087	.056	.002
Income	- .135	- .073	- .111
Need variables:			
Chronic Illnesses	.453**	.663**	.650**
Cognitive Impairment	- .030	.058	.034
Perceived general health status today	- .272**	- .355**	- .373**
Perceived general health status in past 1 month:			
----PCS score	-.377**	---	---
----MCS score	-.106-		
Perceived general health status in past 6 months	---	-.409-**	---
Perceived general health status in past 12 month	---	---	- .306**

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

employment status variables.

Enabling Factors.

For the enabling variables, utilization of the PHC services was not associated significantly with either health insurance or income.

Need Factors.

In terms of need variables, the positive association between utilization of PHC services and chronic illnesses indicated that those having a chronic illness were associated with significantly greater use of PHC services ($r\ (190) = 0.453$, $p < 0.01$). The negative association of the PHC services utilization with both the perceived general health status today and the PCS score variables indicated the participants with perceptions of poorer health status and symptoms or poor physical health (lower SF-12v2 PCS score) used significantly more PHC services, ($r\ (190) = -0.27$, $p < 0.01$), and ($r\ (190) = -0.37$, $p < 0.01$), respectively. In contrast, utilization of PHC services was not associated significantly with cognitive impairment or MCS scores.

In Past 6 Month Period.

For utilization of PHC services in the past 6 month period, a total of 7 of 12 study variables were significantly associated with the use of the PHC services by older adults.

Predisposing Factors.

In term of predisposing variables, there was a significant positive association between age and utilization of PHC services in the past 6 month period, indicating that increasing age was significantly related to increasing use of PHC services, ($r\ (190) = 0.22$, $p < 0.01$). Similarly, utilization of PHC services was significantly associated with employment status, indicating that unemployed or retired older adult status was associated with significantly greater use of PHC services, ($r\ (190) = .178$, $p < 0.05$).

Utilization of PHC services was significantly and negatively associated with education level and tobacco use, indicating that those who were not educated or had a primary school education, and non smoker adult status was associated with greater use of PHC services ($r(190) = -.200$, $p < 0.01$) and ($r(190) = -.16$, $p < 0.05$) , respectively. However, there were no differences in PHC service utilization based on gender and marital status.

Enabling Factors.

For the enabling variables, utilization of the PHC services was not associated either with health insurance or income.

Need Factors.

For the need variables, having a chronic illness was significantly and positively associated with utilization of more PHC services ($r(190) = 0.663$, $p < 0.01$). The negative association of the PHC services utilization with both the perceived general health status today and perceived general health status in past 6 months variables indicated that those with poor self-rated general health status today and having a poor self-rated general health status in the past 6 month was significantly associated with use of more PHC services ($r(190) = -.355$, $p < 0.01$), and ($r(190) = -.409$, $p < 0.01$), respectively. In contrast, utilization of the PHC services was not associated significantly with the cognitive impairment.

In Past 12 Month Period.

Regarding the utilization of PHC services in the past 12 month period, a total of 7 of 12 study variables were significantly associated with the use of the PHC services by older adults.

Predisposing Factors.

In term of predisposing variables, there was a significant positive association between age and utilization of PHC services in the past 12 month period, indicating that increasing age was significantly associated with greater use of PHC services, ($r(190) = 0.20$, $p < 0.01$). In the same way, utilization of PHC services was significantly and positively associated with employment status, and this suggests that unemployed or retired older adult status was associated with significantly greater use of PHC services, ($r(190) = 0.21$, $p < 0.01$). Utilization of PHC services was also significantly and negatively associated with both education level and tobacco use, and this indicated that non educated or primary school education and non-smoker older adult status was associated with greater use of PHC services ($r(190) = -0.24$, $p < 0.01$), and ($r(190) = -0.14$, $p < 0.05$), respectively. However, there were no differences in PHC service utilization based on gender and marital status.

Enabling Factors.

Health insurance and income, as enabling variables, were not associated with PHC service use in the present study sample.

Need Factors.

For need variables, the positive association between utilization of PHC services and chronic illnesses indicates that those having a chronic illness were associated with significantly greater use of PHC services, ($r(190) = 0.65$, $p < 0.01$). Also, the negative association between PHC services utilization and the perceived general health status today and perceived general health status in the past 12 month variables indicated that those with poor self-rated general health status today and having a poor self-rated general health status in the past 12 month were significantly associated with greater use of PHC services ($r(190) = -0.37$, $p < 0.01$), and ($r(190) = -0.30$, $p < 0.01$),

respectively. Cognitive impairment, as a need variable, was not significantly associated with PHC service use.

Factors that Predict Primary Health Care Service Utilization

A binary logistic regression analysis was conducted to predict PHC service utilization in the past 1, 6, and 12 month, among 190 older adults aged 50 years old and over. The dependent variable (PHC service use) was coded 0 = non-use and 1= use. Nine predictors were included in the models. Also, all categorical variables (education level with secondary education and higher as reference group and employment status with employed as a reference group) were changed to dummy variables using the categorical option in the binary logistic regression test in SPSS before they were entered into the logistic regression models.

In the Past 1 Month.

A test of the full model with age, no education, primary education, unemployed, retired, tobacco use, chronic illnesses, perceived general health status today, and a PCS score as the predictors variables, and compared with a constant- only or null model was statistically significant, X^2 (9) = 56.067, P = 0.001. The goodness of fit test for the Hosmer and Lemeshow test was statistically not significant, X^2 (8) = 6.840, P = .554, which indicated that the model fit the data well.

The Cox and Snell R^2 = 0.256 and the Nagelkerke R^2 = 0.344 signified that the association between the nine combined predictors variables and the odds of PHC service utilization was mild to moderate according to Cohen (1988).

Table 10 shows the logistic regression coefficients, Wald tests, and odds ratios for each predictor.

Predisposing Factors.

Regarding the predisposing factors, the Wald statistic for the coefficients associated with age, no education, primary education, unemployed, retired, and tobacco use were not statistically significant. Thus, there were no significant differences in the odds of PHC service use in the past 1 month for increasing in age, having no education group versus having secondary and higher education group, having primary school education group versus having secondary and higher education group, unemployed group versus employed group, retired group versus employed group, and tobacco use group versus non tobacco use group, respectively.

Table 10. Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 1 Month.

Predictors Variables	b	Wald	Odds ratio	95% Confidence Interval for Odds ratio	
				Lower	Upper
Predisposing factors					
Age	- 0.016	0.579	0.984	0.945	1.025
Education level					
No Education	0.318	0.231	1.375	0.376	5.030
Primary education	- 0.407	0.623	0.666	0.242	1.829
Secondary & higher education #	-----	------	1.000	-----	------
Employment status					
Unemployed	0.404	0.095	1.498	0.115	19.597
Retired	0.342	0.071	1.407	0.114	17.407
Employed ^	-----	-----	1.000	-----	-----
Tobacco Use	- 0.248	0.348	0.781	0.343	1.777
Need factors					
Chronic Illnesses	2.590	15.13 **	13.324	3.614	49.128
Perceived general health today.	- 0.082	0.265	0.921	0.673	1.260
PCS score	-0.022	0.973	0.978	0.936	1.022
R2 (Nagelkerke)	0.344				
R2 (Cox & Snell)	0.256				
X^2	X^2 (9) = 56.067 (P = 0.001)				

Reference group
^ Reference group

Note: PCS = Physical Component Summary Score of SF-12v2

In contrast, the odds ratio for the no education predictor was 1.375; this indicates that the odds of the PHC service use in the past 1 month for the non- educated group tended to be slightly higher than the odds of PHC service use in the past 1 month for having secondary and higher education group, but the non-significant Wald test tells

us that this difference was too small to be judged statistically significant. Similarly, odds ratio for unemployed and retired predictors were 1.498 and 1.407, respectively. This indicates that the odds of the PHC service use in the past 1 month for both the unemployed group and retired group tended to be slightly higher than the odds of PHC service use in the past 1 month for employed group. However, the non-significant Wald test tells us that these differences were too small to be judged statistically significant.

Need Factors.

For need factors, the Wald statistic for the coefficient associated with chronic illness was statistically significant, X^2 (1) = 15.13, P < 0.001. The odds ratio for chronic illness was 13.324. This signifies that the odds of PHC service use in the past 1 month for those having chronic illnesses tended to be higher than the odds of the PHC service use in the past 1 month for those having no chronic illnesses. In this model, the Wald statistics for the coefficient associated with the PCS score and self-perceived general health status today were not statistically significant. Thus, there was no significant difference in odds of PHC service use in the past 1 month for poor self- perceived general health status today group versus good self- perceived general health status today group, and the group reporting poorer physical health (lower SF-12v2 PCS score) versus the group reporting better physical health (upper SF-12v2 PCS score) group.

In the Past 6 Months

A test of the full model with age, no education, primary education, unemployed, retired, chronic illnesses, perceived general health status today and self-perceived general health in the past 6 months as the predictors variables, and compared with a constant- only or null model was statistically significant, X^2 (9) = 91.565, P = 0.001. The goodness of fit test for the Hosmer and Lemeshow test was statistically not

significant, X^2 (df = 8) = 12.612, P = .126, which indicated that the model fit the data well.

The Cox and Snell R^2 = 0.382 and the Nagelkerke R^2 = 0.537 showed that the association between the nine combined predictors variables and the odds of PHC service utilization was moderate to strong according to Cohen (1988).

Table 11 illustrates the logistic regression coefficients, Wald tests and odds ratios for each of the predictor variables.

Predisposing Factors.

In terms of the predisposing factors, the Wald statistic for the coefficients associated with age, having no education, primary education, and tobacco use were not statistically significant. Thus, there were no significant differences in the odds of PHC service use in the past 6 month for increasing in age, having no education group versus having secondary and higher education group, having primary school education group versus having secondary and higher education group, and tobacco use group versus non tobacco use group. The odds ratio for unemployed as a predictor was 1.99; this indicates that the odds of the PHC service use in the past 6 month for the unemployed group tended to be higher than the odds of PHC service use in the past 6 month for the employed group, but the non significant Wald test tells us that this difference was too small to be judged statistically significant. Similarly, odds ratios for retired as a predictor was 1.829; this indicates that the odds of the PHC service use in the past 6 month for the retired group tended to be slightly higher than the odds of PHC service use in the past 6 month for the employed group, but the non-significant Wald test tells us that this difference was too small to be judged statistically significant.

Table 11. Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 6 Months.

Predictors Variables	b	Wald	Odds ratio	95% Confidence Interval for Odds ratio: Lower	Upper
Predisposing factors					
Age	0.004	0.031	1.005	0.955	1.056
Education level					
No Education	- 0.262	0.097	0.769	0.148	4.002
Primary education	- 0.786-	1.639	0.456	0.137	1.518
Secondary & higher education #	-----	------	1.000	-----	-----
Employment status					
Unemployed	0.692	0.355	1.999	0.205	19.504
Retired	0.604	0.296	1.8291	0.207	16.148
Employed ^	-----	-----	1.000	-----	------
Tobacco Use	- 0.244	0.252	0.784	0.302	2.033
Need factors					
Chronic Illnesses	2.977	38.636 **	19.634	7.679	50.203
Self- perceived general health today.	0.033	0.015	1.033	0.610	1.750
Self-perceived general health in past 6 month.	- 0.416	1.974	0.660	0.370	1.178
R2 (Nagelkerke)	0.537				
R2 (Cox & Snell)	0.382				
X^2	X^2 (9) = 91.565 (P = 0.001)				

* Wald Statistics is significant at the 0.05 level.
** Wald Statistics is significant at the 0.001 level
Reference group
^ Reference group

Need Factor.

Regarding the need factors, the Wald statistic for the coefficients associated with chronic illness was statistically significant, X^2 (1) = 38.636, P < 0.001. The odds ratio for chronic illness was 19.634. This indicates that the odds of PHC service use in

the past 6 month for those having chronic illnesses tended to be much higher than the odds of PHC service use in the past 6 month for those having no chronic illnesses. The Wald statistic for the coefficients associated with perceived general health status today and perceived general health in past 6 months were not statistically significant. Accordingly, there were no significant differences in the odds of PHC service use in the past 6 months for those with poor perceived general health status versus those with good perceived general health status today, and for those with poor perceived general health status in past 6 months versus those with good perceived general health status in past 6 months.

In the Past 12 Months

A test of the full model including age, no education, primary education, unemployed, retired, tobacco use, chronic illnesses, perceived general health status today, and self-perceived general health past 12 month as predictors variables, and compared with a constant- only or null model was statistically significant, X^2 (9) = 84.87, P = 0.001. The goodness of fit test for the Hosmer and Lemeshow test was not statistically significant, X^2 (8) = 4.79, P = .779, which indicates that the model fits the data well.

The Cox and Snell R^2 = .360 and the Nagelkerke R^2 = .535 signified that the association between the nine combined predictors variables and the odds of PHC service utilization was moderate to strong according to Cohen (1988).

Table 12 illustrates the logistic regression coefficients, Wald tests and odds ratios for each of the predictors.

Predisposing Factors.

In term of the predisposing factors, the Wald statistic for the coefficients associated with age, no education, primary education, unemployed, retired, and tobacco

use was not statistically significant. Accordingly, there were no significant differences in the odds of PHC service use in the past 12 months for increasing in age, having no education group versus having secondary and higher education group, having primary school education group versus having secondary and higher education group, unemployed group versus employed group, retired group versus employed group, and tobacco use group versus non tobacco use group. However, the odds ratios for no education, primary education, unemployed, and retired were 3.265, 1.504, 2.628, and 4.577, respectively; this indicates that the odds of PHC service use in the past 12 months for the having no education group tended to be higher than the odds of PHC service use in the past 12 months for the having secondary and higher education group; the odds of PHC service use in the past 12 months for the having primary education group tended to be higher than the odds of PHC service use in the past 12 months for the having secondary and higher education group; the odds of PHC service use in the past 12 months for the unemployed tended to be higher than the odds of PHC service use in the past 12 month for the employed group, and the odds of the PHC service use in the past 12 months for the retired group tended to be higher than the odds of PHC service use in the past 12 months for employed group. Nevertheless, the non-significant Wald test tells us that these differences were too small to be judged statistically significant.

Need Factors.

Regarding the need factors, the Wald statistic for the coefficients associated with chronic illness was statistically significant, $X^2(1) = 35.93$, $P < 0.001$. The odds ratio for chronic illness was 17.915, indicating that the odds of PHC service use in the past 12 months for having chronic illnesses tended to be much higher than the odds of PHC service use in the past 12 months for those having no chronic illnesses. The Wald

Table 12. Binary Logistic Regression Analysis of Predictors of Primary Health Care Service Utilization of Older Adults in the Past 12 Months.

Predictors Variables	b	Wald	Odds ratio	95% Confidence Interval for Odds ratio	
				Lower	Upper
Predisposing factors					
Age	- 0.022	0.637	0.978	0.925	1.033
Education level					
No Education	1.183	1.754	3.265	0.567	18.807
Primary education	0.408	- 0.433	1.504	0.446	5.074
Secondary & higher education #	-----	-----	1.000	-----	------
Employment status					
Unemployed	0.966	0.622	2.628	0.238	29.027
Retired	1.521	1.63	4.577	0.444	47.190
Employed ^	-----	-----	1.000	-----	-----
Tobacco Use	- 0.181-	0.122	0.834	0.302	2.309
Need factors					
Chronic Illnesses	2.886	35.93	17.915**	6.974	0.023
Self- perceived general health today.	- 0.418-	3.320	0.658	0.420	1.032
Self-perceived general health in past 12 month.	- 0.034-	0.024	0.967	0.628	1.488
R2 (Nagelkerke)	0.535				
R2 (Cox & Snell)	0.360				
X^2	X^2 (9) = 84.87 (P = 0.001)				

* Wald Statistic is significant at the 0.05 level.
** Wald Statistic is significant at the 0.001 level
Reference group
^ Reference group

statistics for the coefficients associated with self perceived general health status today and self perceived general health in past 12 months was not statistically significant. Consequently, there were no significant differences in the odds of PHC service use in the past 12 months for the poor perceived general health status today group versus the good perceived general health status today group, and for the poor perceived general health status in past 12 month group versus the good perceived general health status in past 12 months group.

Summary of the Analyses

Results from analyses of data from a total sample of 190 Jordanian older adults (aged 50 and over) living in three catchment areas of the Irbid governorate were presented in this chapter. This analysis focused on three keys parts of exploration: (a) examining patterns of PHC services utilization; (b) determining the association between predisposing, enabling, and need factors and PHC services utilization; and (c) indicating factors that predict the probability of PHC services utilization in the past 1, 6, and 12 month periods. In order to answer the three questions of this study, descriptive analyses, bivariate correlation analyses and binary logistic regression analyses were conducted.

Descriptive Analyses.

Means, frequencies and percentages were used to describe the variables of the study. PHC services utilization patterns for older adults in the past 1, 6 and 12 months were described. The results showed that there were varying patterns of health services utilization and among the three times periods the greatest percentage of older adults used PHC services in the past 12 month period for both medical services and nursing services.

Bivariate Analyses.

Bivariate analyses were conducted to determine the predisposing, enabling, and need factors associated with PHC services utilization. Results from the bivariate analyses identified nine key factors that influenced PHC service use in the past 1, 6 and 12 months: Predisposing variables (age, education level, employment status, and tobacco use) and need variables (chronic illnesses, perceived general health status today, PCS score, perceived general health status in past 6 months, and perceived general health status in past 12 months). These key factors were subsequently included as control variables in the multivariate analysis described below. In contrast none of the following variables had a high or significant correlation with PHC service use: predisposing variables (gender and marital status), enabling variables (health insurance and income), and need variables (cognitive impairment and MCS score).

Multivariate Analyses (Three Models).

In the last step in this chapter, multivariate analyses were conducted to indicate which of the predisposing, enabling, and need factors identified in the bivariate analyses predicted the probability of PHC services utilization in the past 1, 6, 12 months. The results showed that one need factor, chronic illnesses, was consistently related to PHC services utilization in the three logistic regression analyses.

Chapter 5

Discussion

The objectives of this study were: to examine the PHC service utilization patterns of older adults, to examine the relationship of the PHC services utilization with the predisposing, enabling, and need factors, and to indicate factors that predict PHC service utilization. This study is one of few studies in Jordan and Arab countries that address older adults PHC service utilization and factors contributing to their PHC service utilization. In this chapter the study sample characteristics are discussed, results of the bivarate and multivariate analysis are summarized and discussed for each research question and in relation to previous studies. The limitations of the study were addressed, and implications and recommendations for future research and practice are presented.

Utilization Patterns

For older adults in three catchment areas of the Irbid governorate of Jordan, data on medical services utilization by older adults in the past 1, 6, and 12 months were not consistent. The findings showed that the rate of medical services use by older adults in the past one month period was less than 50%, which was consistent with Asian country. For example, in Hong Kong, the data on health care services utilization in the past one month by older adults for western medicine doctors in government clinics (including general and specialist) was as high as 31.1% (Yam, Mercer, Wong, Chan, and Yeoh, 2009). The low rate of utilization in the past month observed in the present study may be attributed to that not all older adults use the health center monthly and many older adults, especially those who have chronic illnesses, receive their medication prescriptions in two or three month cycles.

The present finding showed that approximately two-thirds of the older adult participants used PHC services in the past 6 months for medical health services, which differed from the rate reported by Chou and Chi (2004). Chou and Chi (2004) found that the most frequently used health services in the previous 6 months by Hong Kong Chinese older adults was general outpatient clinic services (36.7%).

In the past 12 month period, the findings indicated that approximately three-quarters of the older adult participants used PHC services for medical health services, which is close to some other countries. For example, in Estonia, the rate of reporting having visited a general practitioner (GP) or specialist during the past 12 month by the old adult people was as high as 81% (Põlluste, Kalda, and Lember, 2009). The high rate of medical service utilization in past 12 month compared with rate of utilization in past 6 month and 1 month periods observed in present study can be related to using longer time periods for examining health care utilization, which may have helped to include those who rarely use PHC services.

Regarding the nursing services utilization, the present study findings indicated that the rates of nursing services utilization in the past 1, 6, 12 months were less than 50%. Direct comparisons of nursing services utilization rates within the three recall periods with previous study findings was difficult for two reasons. The first reason; to our knowledge, there are limited published studies that have examined health care service utilization rates with specific data on nursing services utilization rates by older adults. The second reason --- recall periods often differ in published studies on health care service utilization. Findings of the present study were consistent with a study in Spain. Fernandez-Olano et al, (2006) found that of the health care services (outpatient care) that were used in the past 3 months, 18.4% was provided by nursing staff. Further

studies need to be conducted on the utilization of more and different types of health care service in the changing health care context.

Factors Associated with PHC Service Utilization

Direct comparisons between the present study findings and prior health care services utilization studies are difficult because of the limited number of studies focusing on older adults. Also, few studies address the three recall periods used in the current study.

Predisposing Factors.

In term of predisposing factors, PHC service utilization was found to be significantly associated with age, education level, employment status, and tobacco use. Whereas, PHC service utilization was not associated with both marital status and gender.

Age as one of the predisposing factors was not associated with PHC service utilization in the past 1 month. This result was similar to that found in a cross-sectional study by Fernandez-Olano and colleagues (2006). They found that the use of outpatient services (family medicine, nursing or specialist visits) and general practitioner consultations in the past 3 months was not associated with age, which is a longer period than the current study. However, they found that age was significantly and positively associated with PHC service utilization in the past 6 and 12 months periods. In contrast, however, Villacorta (2003) found a negative association between use of health care services in the past year and the increasing age of older adults in Thailand. In his study, the highest proportion of older adults who utilized health services, including the health center, were the young-old, followed by the middle-old and the old-old.

The education level as a predisposing factor was negatively and significantly associated with PHC service utilization in the past 1, 6, and 12 months. These results

were consistent with a Spanish study which found that the volume of general practitioner visits in the past 3 month period, as a part of general health care utilization, was inversely associated with educational level (Fernandez-Olano et al. 2006). Also, the results of the current study were consistent with a Thai study, which found that health services, including community health centers, were utilized more in the past 12 months by less educated versus more educated older adults (Villacorta, 2003).

In the present study, employment status was positively and significantly associated with PHC service utilization in the past 6 and 12 months. However, it was not associated with PHC service utilization in the past 1 month. As limited PHC literature includes older adults, employment status was among the factors not included in many studies. However, similar results were observed in the region of Kassena-Nankana, Ghana, where researchers found a significant association between study participants who reported to have an occupation and health care use in the past 3 years, which was much longer period that the current study (Exavery, 2010).

Regarding tobacco use, the findings indicated that tobacco use was negatively and significantly associated with PHC service utilization in the past 1, 6, and 12 months. This result is consistent with the findings of Fernandez-Olano and colleagues (2006). In their study the researchers found that smoking was inversely associated with health care utilization in the past 3 month period.

In the present study, PHC service utilization in the past 1, 6, and 12 months was not significantly associated with marital status. This finding was not in agreement with Andersen’s behavioral model of health service use. This inconsistency between the current study finding and Andersen’s behavioral model may be attributed to that the majority of the current study sample (88.4%) was married. However, this finding was

consistent with a cross sectional study that found no differences in outpatient service use in the past 3 months based on marital status (Fernandez-Olano et al. 2006).

Additionally, PHC service utilization in the past 1, 6, and 12 months was not significantly associated with gender. Such finding was inconsistent with Andersen's behavioral model of health service use and with the finding of Fernandez-Olano, et al. (2006) who found that the number of health care services used in the past 3 months was higher for females than males.

Enabling Factors.

For enabling factors (income and health insurance), none were significantly associated with PHC service utilization in the past 1, 6, and 12 months. These findings were not in agreement with Andersen's behavioral model of health service use. Regarding income, Fernandez-Olano et al. (2006) found similar findings --- no differences in outpatient service use in the past 3 months based on family income. In terms of health insurance, Park (2005) found that health insurance was significantly associated with use of long-term care services in the past 12 months; those who utilized more long-term care services were those without health insurance. This disagreement with past study could be attributed to that the majority of participants in the present study were health insured (93.7%).

Need Factors.

PHC service utilization was found to be significantly associated with chronic illnesses, perceived general health status today, PCS score, perceived general health status in past 6 months, and perceived general health status in past 12 months.

In this study, chronic illness was positively and significantly associated with PHC service utilization in the past 1, 6, and 12 months. Similar results were observed in the Albacete City study (Castilla-La Mancha, Spain), whereby the utilization of

outpatient services and general practitioner consultations in the past 3 months increased with the number of chronic illnesses and medications (Fernandez-Olano et al., 2006). Similarly, a Thai study supported that health care services, including health centers, were usually used in the past 12 months by more older adult with non-communicable diseases such as arthritis, high blood pressure, and heart problems (Villacorta, 2003).

Cognitive impairment was another need factor, but it was not found to be significantly associated with PHC service utilization in the past 1, 6, and 12 months. This finding is not in agreement with the earlier findings of Park (2005)**,** and Exavery (2010). In Asia, specifically, South Korea, cognitive conditions were significantly associated with long-term care services use among older adults (Park, 2005). In Africa, in Kassena-Nankana district, Ghana, it was found that cognitive impairment significantly influenced health care use among rural old adults Ghanaians; those who reported severe cognitive impairment in the past 1 month were 26% more probable to use health care services than those who did not report the impairment (Exavery, 2010). The inconsistency between the current study findings and prior studies regarding the association between cognitive impairment and PHC service utilization in the past 1, 6, and 12 months may be attributed to two reasons; first, in this study only 3.2 % of the sample had cognitive impairment. Second, it may be due to different measures being used to assess cognitive impairment. In this study, cognitive impairment was measured using the ECQA tool. In contrast, Park (2005) measured cognitive status using the Mini-Mental State Examination (MMSE). In the Exavery (2010) study, cognitive impairment was measured with a dichotomous variable (measured as difficulty with remembering things or concentrating in the past 1 month).

The perceived general health status need factors were found to be negatively and significantly associated with PHC service utilization. The perceived general health

status today factor was found to be negatively and significantly associated with PHC service utilization in the past 1, 6, and 12 months. In this study, this factor reflected how older adults perceived their own general health status on the day of the interview. Those older adults who perceived that they were in poor health, on the day of the interview, tended to use more PHC services during the past1, 6, and 12 month periods. Similarly, those who perceived that they had poor physical health status on the PSC in the past 1 month, and those who perceived they had a poor general health status in the past 6 and 12 months tended to use more PHC services in the past1, 6, and 12 months, respectively. Such similarity may reflect that perceptions of health status may not change over a 1 year period (1, 6, 12 months) for those who perceive their health to be poor. Comparisons with other studies were difficult because to our knowledge no studies to this point explored the correlation of perceived general health status today variable and PHC services utilization in the past 1, 6, and 12 months in older adults. Hence, further studies need to be conducted to make clear and confirm that perceived general health status today correlates with PHC service utilization of older adults, which in turn may be used as indicators of the effectiveness of the utilization. One explanation may be that older adults, especially those who have chronic illnesses, tend to go to health centers mainly for one reason --- to obtain their prescribed medication. Also, both aging and many of chronic illnesses are associated with disabilities and complications that are difficult to manage. So, such utilization may not be able to improve perceived general health status within a 1 year time period.

The perceived general health status in past 1 month, in particular, physical health (PCS score), was negatively and significantly associated with PHC service utilization in the past 1 month. This result disagrees with the results of two previous cross-sectional studies (Exavery, 2010; Fernandez-Olano et al., 2006). For instance,

Exavery (2010) found that the variables; difficulty with picking up things in the past 1 month, difficulty seeing and recognizing an object at a distance of 20 meters, and difficulty with self-care (ADL (Activity of Daily Living) - dressing, bathing and washing) in the past 1 month were not associated with health care utilization among older adults in rural Ghana in the past 3 years. Also, Fernandez-Olano et al. (2006), found no differences in health care service use regarding instrumental activities of daily living (IADLs) in the past 3 months.

The mental health (MCS score), however, was not associated with PHC service utilization in the past 1 month. This finding diverges from that of Fernandez-Olano et al. (2006). They found that, on the area under discussion of depression, about 25.4% of older adult users had scores consistent with depression next to 13.9% of nonusers.

The perceived general health status in the past 6 months, in this study was found to be negatively and significantly associated with PHC service utilization in the past 6 months. This finding was in agreement with another cross sectional study, which found that among users of health care services in the past 3 months, 17.7% felt their health was poor next to 10.2% of nonusers (Fernandez-Olano et al., 2006).

Perceived general health status in the past 12 months was found to be negatively and significantly associated with PHC service utilization in the past 12 month. This result is consistent with the results of a cross-sectional South Korean study (Park, 2005). In his study, the researcher found those who were most likely to use long-term care services in the year prior to the interview were those who had fair or poor health.

Predictors of PHC Services Use in the Past 1, 6, and 12 Month

Predisposing Factors.

All the predisposing factors which were significantly associated with PHC services utilization in the past 1, 6, and 12 months in the bivariate analysis (age,

education level, employment status, and tobacco use), were not significant in the multivariate analysis.

In this study, age as predisposing factor was not a significant predictor of PHC services utilization in the past 1, 6, and 12 months. This finding was inconsistent with preceding findings showing that age group was a significant predictor of health care use in the past 3 years among older adult rural Ghanaians (Exavery, 2010). Noro, Hakkinen, and Laitinen (1999) found that there was a small and non-significant decline in visits to doctors, with age, in the past 6 months, but older age groups had significantly more hospital use. Also, the group aged 70—74 years used 95% more hospital days than the reference group (60-64 years). Regarding the impact of age on use of home care; the oldest age group received around 500% more home care than the reference group. This inconsistency between the present study finding and the prior studies may be explained by how the variables were measured; in the present study age was measured as a continuous variable, while some prior studies examined and categorized it into age groups. Also, in the present study, participants were asked about PHC services utilization while Noro et al. also focused on hospitalizations and home care.

Another predisposing factor in this study which was not a significant predictor of PHC services utilization in the past 1, 6, and 12 months was education level. This finding was similar to the prior findings of the South Korean study (Park, 2005). In contrast, the finding of present study was inconsistent with the Spanish study that showed that a low level of education (OR=2.41, 95% CI 1.42–4.12) was a significant predictor of general practitioner use in the past 3 months among older adults in Albacete City (Castilla-La Mancha, Spain) (Fernandez-Olano et al. 2006).

Similarly, in this study employment status was not a significant predictor of PHC services utilization in the past 1, 6, and 12 months. Similar findings were pointed out by Exavery (2010). In his study, the researcher indicated that although employment status had a significant association with health care utilization in the past 3 years in the bivariate analysis, it was not significant in the multivariate analysis.

Likewise, the tobacco use factor was not a significant predictor of PHC services utilization in the past 1, 6, and 12 months. The finding from this study supported the findings of Fernandez-Olano et al (2006). As understood from their study, in the multivariate analysis smoking was not a significant predictor of health care utilization in the past 3 months among older adults, even though it was inversely associated with health care utilization in the bivariate analysis.

Need Factors.

The multivariate analysis from the present study revealed that one need factor, chronic illnesses, was a significant predictor of PHC services utilization in the past 1, 6, and 12 months. The remaining need factors (self perceived general health today, PCS score**,** self perceived general health in past 6 months**,** and self perceived general health in past 12 months) were not significant predictors of PHC services utilization in the past 1, 6, and 12 months**.**

Chronic illness was the strongest and dominant significant predictor of PHC services utilization in the past 1, 6, and 12 months**.** The multivariate analysis in this study indicated that older adults who had chronic illnesses were 13.3, 19.6 , 17.91 times more likely to use PHC services than older adults who did not have chronic illnesses in the past 1, 6, and 12 months, respectively. This finding is consistent with those of Chou and Chi (2004). They found that the presence of chronic illnesses (arthritis, hypertension, diabetes, and gastrointestinal diseases) was significantly related to the

odds of attending general outpatient clinics in the preceding 6 months. The findings of this study can be explained by the fact that the majority of the older adults in the present study who used PHC services in the past 1, 6, and 12 months had at least one chronic illness, and chronic illnesses need continuous treatment. Accordingly, the utilization of these services is a regular process among chronically ill older adults, who utilize medical services to visit the doctor and obtain their prescribed medications on a routine basis. Nevertheless, further studies need to be conducted to delineate the chronic illness in order to clarify the individual impact of each illness on the PHC service utilization of older adults in Jordan.

Perceived general health today as a need factor in this study was not found to be a significant predictor of PHC services utilization in the past 1, 6 and 12 months. However, direct comparisons with other past studies were difficult because to our knowledge no studies so far explored and found perceived general health status today as a predictor of PHC services utilization in the past 1, 6, and 12 months in older adults.

PCS score as a need factor in this study was not found to be a significant predictor of PHC services utilization in the past 1month. This finding diverges from that of Chou and Chi (2004). They found that activities of daily living (ADL) scores, as a measure of older adults' functional disabilities, was significantly related to the probability of attending general outpatient clinics in the past 6 month, which was a longer period. One justification for this difference could be related to differences in measures that were used to assess the self-evaluation of physical health. Another justification could be related to differences in recall periods in assessing of the utilization.

The perceived general health status in the past 6 months was not found to be a significant predictor of PHC services utilization in the past 6 months. This finding

diverges from that of Fernandez-Olano et al (2006). In their study, they found that negative self-reported health status was associated with general practitioner consultation use in the past 3 months in their logistic regression model, which was derived from participants' answers to a 4-point question of whether participants would self-rate their health as very good, good, average, poor or very poor. The difference in findings among the present study and the other past studies might be explained by the type of measures used to evaluate general health status, as well as the differences in the utilization recall period.

Perceived general health in past 12 months was not a significant predictor of PHC services utilization in the past 12 months. This finding is inconsistent with earlier findings by Park (2005), who found that health status as a need factor was a significant predictor of long-term care services use in the past 12 month among older adults. His data were derived from participants' answers to a 4-point question of whether participants would self-rate their health as excellent, good, fair, or poor. This difference in findings could be explained by differences in the scales that were used to evaluate general health status.

Limitations and Strengths of the Study

As with all studies, the present study had certain limitations that should be recognized and discussed. First, health care services use was self-reported which may be biased due to the effect of recall bias. Similarly, history of chronic illnesses was self-reported, and no medical confirmation of such reports was made, and this may compromise the accuracy of the estimation of chronic illness frequency. Likewise, the perceived health status of the study participants was from self-reports. However, several attempts were made to reduce the chance and magnitude of recall bias in this study: (a) The study used different recall periods (1 month, 6 months and 12 months);

(b) When the researcher asked older adult participants regarding their use of health care services during the three periods, important historical events were used to help them to remember and confirm their utilization; (c) health care services use and history of chronic illnesses were measured as a dichotomous variable, and it is reasonable to believe that older adult might more easily recall if they had used/ not used PHC services within the past 1, 6 and 12 months compared to inquiring about the frequency of use in those time periods; also history of chronic illness/ no history of chronic illness was thought to be easier to recall than frequency of chronic illness events; and (d) The study participants were community dwelling older adults with a relatively low frequency of cognitive impairment (about 3.2% had evidence of cognitive impairment depending on ECAQ; Kua & Ko, 1992). The second limitation in the present study was that data were collected using face to face interviews, which could bias participant's responses due to the impact of social desirability; by giving responses that were more socially desirable than their real experience. Third, because of time and financial restrictions it was impossible to include all the catchments areas associated with all comprehensive PHC centers located within Jordan or the Irbid governorate in the north part of Jordan for the purpose of this study. Therefore, the results cannot be generalized to PHC services in other governorates or in the entire country. Fourth, this study measured use of PHC service utilization as a dichotomous dependent variable (use versus nonuse) rather than a continuous variable. Fifth, the present study classified the type of PHC services into medical service and nursing service only and examined their patterns. Sixth, this study measured reporting of chronic illnesses as a dichotomous independent variable (have chronic illness versus not have), which made it difficult to examine the independent impact of each type of chronic illness on PHC services utilization among older adults. Seventh, this study mainly focused on the individual

characteristics of the Andersen Model of Health Services Use as a unit of analysis, and variables related to the external environment were not measured in this study. Eighth, the cross-sectional nature of the present study may limit the interpretation of findings.

In spite of these limitations, the present study had the following numerous strengths. First, the present study provides information that is helpful to health care providers, researchers, and policy decision makers. Second, to our knowledge, this study is one of the few studies that examined the factors associated with PHC services use by older adults in Jordan. Third, the present study included older adults aged 50 to 92 years, which can be considered as strength of the study. Fourth, unlike several prior studies examining health care services utilization among older adults that only included one need factor (self-reported general health status), this study incorporated a rich set of need factor measures (such as chronic illnesses, cognitive impairment, and the SF12v2 which helped to provide a more detailed and standardized assessment of health (summarized into PCS and MCS), which in turn will permit for a more accurate and precise measurement of need factors. Fifth, this study is grounded in Andersen's Model of Health Services Use, which is the most widely used theoretical and practical approach in utilization research (Bellon, et al. 1999), and the most frequently used in studies health care services utilization by older adults (Wan, 1989). Sixth, this study represents a collaboration of many diverse disciplines, such as health care services research, including medicine (public health), nursing (community health nursing & nursing management), and rehabilitation science.

Conclusion

This study of older adult PHC utilization and factors contributing to PHC utilization in three catchments areas of the Irbid governate of Jordan had both strengths and limitations. About three-fourths of older adults in this study reported having at least

one chronic illness. Hence, there is unusually high rate of chronic illness such as hypertension, and diabetes mellitus among older adults in Jordan. In term of utilization patterns, the findings reflected high utilization rates of PHC services among older adults over a 1 year period. The present study identified several predisposing and need factors were associated with PHC service utilization. However, the strongest predictor of PHC service utilization was the medical history of chronic illnesses.

Implications

For nursing practice and education, this study adds to the body of knowledge in geriatric nursing by increasing nurses awareness regarding old adult's health seeking behavior. The data generated in this study also may be the initial step in developing an effective nursing care program to promote well-being in Jordanian older adults.

Regarding policy and health care systems, a good understanding of PHC service use may permit MOH in Jordan to provide appropriate health care services for older adults that are both efficient and cost-effective. Also, the PHC services were used mainly by older adults with chronic illnesses. So, to improve the health status of the older adults efficiently, and as a result reduce their use of health care services, one of the main sensible health care policies is to promote healthy lifestyles throughout the life course.

Recommendations

Based on the findings of the present study, the following recommendations for health care systems, health care policy decision makers, researchers, nurses and other health care providers are made with the intent of improving PHC services for older adults in Jordan.

Recommendations for Research.

1- Future studies of health care services utilization may focus on assessing the volume of PHC services. For example, PHC service use frequency could be obtained as the dependent variable.

2- Future studies need to examine and classify the type of PHC services received by older adults with greater detail. For instance, type of PHC services may be classified into general practitioner service, specialist service, family physician service, nursing staff service, laboratory tests service (use of preventive tests such as blood pressure, cholesterol and blood glucose), medication prescription, rehabilitation services, and radiological examinations.

3- One of the directions for future studies is to replicate this study in other governorates so as to address the limitation of generalizability. Also, further studies can be conducted with larger samples using other settings in Jordan.

4- A longitudinal study is needed to identify any causal relationships between health service use and a range of predisposing, enabling and need factors, and to identify changes in the patterns of health care service use over time.

5- Further comparative studies may be conducted to permit for comparisons based on PHC service type, setting and demographic factors.

6- It would be informative, given the increasing demographics of older adults, to study the independent impact of each type of chronic illness on PHC services utilization among older adult.

7- Using standardized measures such as the SF-12v2 health survey may look difficult; however, it may be a more comprehensive measure than using one single question measure to assess self-perceived general health status. It is

suggested to use this brief health survey in future studies to estimate the general health status of the people, and for comparison with other studies.

8- In future studies, the external environment (physical, political, and economic components) of Andersen's Phase 5 model should be addressed, in addition to the factors at the individual level, as an important input for a greater understanding of the use of health care services, and for future planning of health care services for older adults.

9- Research examining utilization of PHC services, functional outcomes and quality of life for older adults is needed.

Recommendations for Policy and Health Care Systems.

1- In Jordan, the PHC system, as presently implemented, may not meet older adult population needs; this system needs to be reoriented and strengthened to be effective and responsive to their specific health needs.

2- The study findings emphasize the necessity for creating new PHC policies that consider the requirements of the older adult people.

3- The high rates of PHC service utilization further signify high burden on older adult, their families and health care providers, thus, availability of health care services for older adults need to be constantly revised when planning health care services.

4- The findings of this study suggest the need for policy and health system responses that will meet the needs of an aging Jordanian population, because this population will increase the demand for health care services; this will put an additional strain on the already overburdened health care services, in term of financial and human resources.

5- The PHC services seem inappropriate for complex chronic illnesses conditions. Long term older adult health care strategies need to work on reorienting PHC services in the direction of chronic care and to develop self-management programs for chronic illnesses.
6- There is a need to plan, build, and implement a full and comprehensive national plan for older adult health.

Recommendations for Nursing Practice and Education.

1- An aging population has become a global phenomenon, and a health care service for this population is a constant challenge for nurses, as health care providers. So nurses need to be preparing well to address the aging population health care needs.
2- Educational programs are needed to increase the awareness of PHC providers regarding the geriatric population, their health care services utilizations patterns, and factors associated with their health care use and their health needs.
3- Training programs are needed to obtain a sufficient number of PHC professionals (nurses, physicians, rehabilitation specialists, and family physicians) who will be trained regarding older adults care.
4- There is a need to develop a research component in the geriatric nursing curriculum so as to be responsive to the changing demographics of an aging population.
5- Andersen’s Behavioral Model of Health Services Use is a comprehensive model that helps health care providers to understand use of health care services, and may help to design and examine care strategies that sustain health care services for community older adults.

6- PHC service utilization was higher among older adults with chronic illness. This draws attention to the importance of supporting chronic care and health care services for older adults to appropriately respond to consequent poor health outcomes such as morbidity, mortality, and disability.

7- There is a need for a long term strategy that focuses on prevention, in order to prevent and manage chronic illnesses.

8- There is a need for comprehensive care programs to be available in PHC centers that focus not only on treatment and medication prescription at the PHC level, but also to improve health and quality of life for older adults.

REFERENCES

Abbas, A. A., and Walker, G. J. (1986). Determinants of the utilization of maternal and child health services in Jordan [Abstract]. **International Journal of Epidemiology,** 15(3), 404-7.

Abu-Mourad, T., Alegakis, A., Shashaa, S., Koutis, A., Lionis, A., and Philalithis, A. (2008). Individual determinants of primary healthcare utilization in Gaza Strip, Palestine [Abstract]. **Journal of Epidemiologic Community Health**, 62, 701-707.

Agbogidi, J., and Azodo, C. C. (2010). Experiences of the elderly utilizing health care services In Edo State. **The Internet Journal of Geriatrics and Gerontology**, 5(2).

Al-Ghanim, S. A. (2004). Factors influencing the utilization of public and private primary health care services in Riyadh city. **JKAU: Economic & Administration**, 19(1), 3-27.

Alhusban, M. A., and Abualrub, R. F. (2009). Patient satisfaction with nursing care in Jordan [Abstract]. **Journal of Nursing Management**, 17, 749–758.

Alkhaldi, S. M. (2008). "Maternal health care utilization in rural Jordanian villages: Patterns and predictors"[Abstract]. **Texas Medical Center Dissertations** *(via ProQuest)***.**

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (1985**). Standards for educational and psychological testing.** Washington, DC: American Psychological Association.

Andersen, R. M. (2008). National Health Surveys and the Behavioral Model of Health Services Use. **Medical Care**, 46, 647–653.

Andersen, R., and Davidson, P. (2007). Improving access to care in America: Individual and contextual indicators. In: Andersen R, Rice T, Kominski J, eds. *Changing the U.S. Health Care System:* **Key Issues in Health Services Policy and Management**. San Francisco, CA: Jossey-Bass, 3–31.

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter?. **Journal of Health Social Behavioral**, 36, 1-10.

Anderson, R. M. (1968). Behavioral model of families use of health services. **Research Series No. 25. Chicago, IL**; Center for Health Administration Studies, University of Chicago.

Arain, M., Campbell, M. J., Cooper, C. L., and Lancaster, G. A. (2010). What is a pilot or feasibility study?. A review of current practice and editorial policy. **BMC Medical Research Methodology**, 10, 67.

Arnold, D. M., Burns, K. E., Adhikari, N. K., Kho, M. E., Meade, M. O., and Cook, D. J. (2009). McMaster Critical Care Interest Group. The design and interpretation of pilot trials in clinical research in critical care**. Critical Care Medicine,** 37(Suppl 1), S69-74.

Bailey, W., and Phillips, D. R. (1990). Spatial patterns of use of health services in the Kingston Metropolitan Area, Jamaica. **Social Science and Medicine**, 30(1), 1–12.

Baker, J. B., and Liu, L. (2006). The determinants of primary health care utilization: a comparison of three rural clinics in Southern Honduras. **Geographical Journal**, 66(4), 295–310.

Bellon, J. A., Delgando, A., DeDiosLuna, J., and Lardelli, P. (1999). Psychosocial and health belief variables associated with frequent attendance in primary care. **Psychological Medicine**, 29, 1347±1357.

Bernstein, A. B., Hing, E., Moss, A. J., Allen, K. F., Siller, A. B., and Tiggle, R. B. (2003). **Health care In America: Trends in utilization**. Hyattsville, Maryland: National Center for Health Statistics.

Bhandari, A., and Wagner, T. (2006). Self-Reported utilization of health care services: improving measurement and accuracy. **Medical Care Research and Review**, 63, 217–235.

Bhandari, A., and Wagner, T. H. (2004). Self-Report utilization: improving measurement and accuracy. **Abstract Academic Health Meeting** (San Diego, Calif.).

Black, N. (1997). Health services research: saviour or chimera? **Lancet**, 349:1834–1836.

Blackwell, D. L., Martinez, M. E., Gentleman, J. F., Sanmartin, C., and Berthelot, J. (2009). Socioeconomic Status and Utilization of Health Care Services in Canada and the United States Findings From a Binational Health Survey. **Medical Care**, 47, 1136–1146.

Borras, J. M. (1994). La utilitzaci´o dels serveis sanitaris. **Gac Sanit**, 8, 30–49.

British Geriatrics Society. (2008). **The older person in the accident & emergency department** BGS Best Practice Guide 3.2 (Revised March 2008). http://www.bgs.org.uk/Publications/Compendium/compend_3-2.htm.

Burns, N., and Grove, S. K. (1993). **The practice of nursing research conduct, critique, and utilization**. 2nd ed. Philadelphia: WB Saunders Company.

Calsyn, R. J., and Winter, J. P. (2000). Predicting Different Types of Service Use by the Elderly: The Strength of the Behavioral Model and the Value of Interaction Terms. **The Journal of Applied Gerontology**, 19(3), 284-303.

Campbell, S. M., and Roland, M. O. (1996). Why people consult a doctor?. **Family Practice,** 13, 75-83.

Chang, J., Patel, I., Liu, S. T., Ortega, A. N., Srivastava, J., Park, Y. S., Kirk, S., and

Balkrishnan, R. (2011). Disparities in health care utilization among Latino children suffering from asthma in California. **Pediatric Health, Medicine and Therapeutics**, 2, 1–8.

Chang, W., Lan, T., Ho, W., and Lan, T. (2010). Factors affecting the use of health examinations by the elderly in Taiwan. **Archives of Gerontology and Geriatrics** 50 Suppl. 1, S11–S16

Cheak-Zamora, N. C., Wyrwich, K. W., and McBride, T. D. (2009). Reliability and validity of the SF-12v2 in the medical expenditure panel survey. **Quality Life Resarch**, 18, 727–735.

Chou, K. L., and Chi, I. (2004). Factors associated with the use of publicly funded services by Hong Kong Chinese older adults. **Social Science & Medicine**, 58, 1025–1035.

Cohen, J. (1988). **Statistical power analysis for the behavioral sciences** (2nd ed.). Hillsdale, N J: Lawrence Erlbaum.

Davis, L. and Grant, J. (1993). Guidelines for using psychometric consultants in nursing studies. **Research in Nursing and Health**, 16, 151-155.

DeCórdova, M. I., Mier, N., Curi, E. J., Gómez, T. G., Quirarte, N. H., and Barrios, F. . (2010). Personal and social determinants of health services utilization by Mexican older people. **International Journal of Older People Nursing**, 5(3), 193-201.

Department of Statistics [Jordan]. (2010). **Statistical Year book.** Amman, Jordan. [Website] (http:// www.dos.gov.jo/dos_ accessed 15 December 2010).

Dominguez, L. J., Galioto, A., Ferlisi, A., Pineo, A., Putignano, E., Belvedere, M., Costanza, G., and Barbagallo, M. (2006). Ageing, lifestyle modifications, and cardiovascular disease in developing countries. **Journal of Nutrition, Health Aging**, 10(2), 143-149.

Douglass, C., and Fox, P. J. (1999). Health Care Utilization among Clients With Alzheimer's disease: Public Policy Implications from the California Alzheimer's disease Diagnostic and Treatment Center Program. **The Journal of Applied Gerontology,** 18(1), 99-121

Ekman, B. (2007). The impact of health insurance on outpatient utilization and expenditure: evidence from one middle-income country using national household survey data. **Health Research Policy and Systems**, 5(6).

Emlet, C. A., and Farkas, K. J. (2002). Correlates of Service Utilization among Midlife and Older Adults with HIV/AIDS: The Role of Age in the Equation. **Journal Of Aging and Health,** 14 (3), 315-335.

ESCWA. (2007). **Population aging in Arab countries**. Author.

Evans, R. G., and Stoddart, G. L. (1990). Producing health, consuming health care.

Social Science and Medicine, 31(12), 1347-63.

Exavery, A. (2010). Determinants of Health Care Utilization among the Elderly Population in Rural Ghana. Master Thesis, University of the Witwatersrand, Johannesburg.

Farrell, C., McAvoy, H., Wilde, J., and Combat Poverty Agency. (2008). **Tackling Health Inequalities –** *An All-Ireland Approach to Social Determinants.* Dublin: Combat Poverty Agency/Institute of Public Health in Ireland.

Fernandez-Olano, C., Hidalgo, J. D., Cerda-Dıaz, R., Requena-Gallego, M., Sanchez-Castano, C., Urbistondo-Cascales, L., and Otero-Puime, A. (2006). Factors associated with health care utilization by the elderly in a public health care system. **Health Policy**, 75, 131–139.

Fiedler, J. L. (1981). A review of the literature on access and utilization of medical care with special emphasis on rural primary care. **Social Science**, 15C, 129-42.

Flett, R., Hirini, P., Long, N., and Millar, M. (2004). Predictors of health care utilization in community dwelling new Zealand Maori**. South Pacific Journal of Psychology**, 15(1), 1-10.

Fong, D. Y., Lam, C. L., Mak, K., Lo, W. S., Lai, Y. K., Ho, S. Y., and Lam, T. H. (2010). The Short Form Health Survey was a valid instrument in Chinese adolescents. **Journal of Clinical Epidemiology**, 63, 1020-1029.

Forbes, D. A., and Janzen, B. L. (2004). Comparison of rural and urban users and non-users of home care in Canada. **Canadian Journal of Rural Medicine**, 9(4). 275-280.

Fortin, M., Soubhi, H., Hudon, C., Bayliss, E. A., and VanDenAkker, M. (2007) Multimorbidity's many challenges. **British Medical Journal**, 334 (7602), 1016–1017.

Gill, G. (2004). **Nightingales: the extraordinary upbringing and curious life of Miss Florence Nightingale**. New York: Random House.

Grant, J., and Kinney, M. (1992). Using the Delphi technique to examine the content validity of nursing diagnosis. **Nursing Diagnosis**, 3, 12-22.

Habib, O. S., and Vaughan J. P. (1986). The determinants of health services utilization in Southern Iraq: A household interview survey**. International Journal of Epidemiology**, 15, 395–403.

Hammond, W. P., Matthews, D., and Corbie-Smith, G. (2010). Psychosocial Factors Associated With Routine Health Examination Scheduling and Receipt Among African American Men. **Journal of the National Medicine Association**,102(4), 276–289.

Ham, R. J. (1997). **Confusion, dementia, and delirium.** In: Ham RJS, edu. Primary Care Geriatrics: A Case-Based Approach. 3rd ed. St Louis, Mo: CV Mosby; 217-259.

Hasna, F. S. (2006). Utilization of family planning services in the governorate of Zarqa, Jordan Abstract. **Journal of Trans Cultural Nursing**, 17(4), 365-374.

High health council. (2007). **Jordan National Health Account.** Author

House, J. S., Lantz, P. M., and Herd, P. (2005). Continuity and change in the social stratification of aging and health over the life course: Evidence from a nationally representative longitudinal study from 1986 to 2001/2002 (Americans' Changing Lives Study). **Journals of Gerontology-B Psychological and Social Sciences** 60B (Special Issue 2), 15-26.

Institute of Medicine. (1995). **Committee on Health Services Research: Training and Work Force Issues**. Health Services Research: Workforce and Educational Issues. Washington, DC: National Academy Press.

Institute of Medicine. (1991). **Improving information services for health services researchers**: a report to the National Library of Medicine. Washington, DC: National Academy Press.

Jairath, N., Hogerney, M., and Parsons, C. (2000).The role of the pilot study: A case illustration from cardiac nursing research. **Applied Nursing Research**, 13, 92–96.

Jih, C. J. (2002). Screening for cognitive impairment in primary care: The role of objective cognitive tests. **The Singapore Family Physician**; 28 (4), 62.

Joint Commissioning Plan. (2009). **Health & social care service for older people in Flintshire.** Author.

Jordan Ministry of Health Irbid Health Directorate. (2010). **PHC services and population of Alweya in Irbid. Irbid (Health Directorate of Irbid):** Ministry of Health, Jordan.

Kelly, M. P., Morgan, A., Bonnefoy, J., Butt, J., and Bergman, V. (2007). **The social Determinants of health: Developing an evidence base for political action.** Final Report to WHO Commission on the Social Determinants of Health from Measurement and Evidence Knowledge Network. at: http://www.who.int/social_determinants/resources/mekn_final_report.

Kirkwood, T. B., and Austad, S. N. (2000). Why do we age? **Nature**, 408, 233-238.

Kroeger, A. (1983). Anthropological and soci-medical health care research in Developing countries. **Social Science and Medicine**, 17(3), 147-l6l.

Kua, E. H. and Ko, S. M. (1992). A questionnaire to screen for cognitive impairment among elderly people in developing countries. **Acta Psychiatrica Scandinavica**, 85: 119-122.

Lackey, N. R., and Wingate, A. L. (1998). **The pilot study: One key to research success**. In P.J. Brink & M.J. Wood (Eds.), advanced design in nursing research (2nd ed.). Thousand Oaks, CA: Sage.

Lioyd-Sherlock, P. (2000). Old age and poverty in developing countries: new policy challenges. **World Development**, 28(12), 2157-2168.

Long, J. S. (1997). **Regression Models for Categorical and Limited Dependent Variables**. Thousand Oaks, CA: SAGE Publications, Inc.

Lucas, A. O., and Gilles, H. M. (2003). **Short textbook of public health medicine for the tropics**. 4th edition. Book power. pp4, 283-287

Mahasneh, S. M. (2000). Survey of the health of the elderly in Jordan. **Medical Journal of Islamic Academy of Sciences,** 13(1), 39-48.

Mahfouz, A. A., Al-Sharif, A. I., El-Gamal, M. N., and Kisha, A.H. (2004). Primary Health care services utilization and satisfaction among the elderly in Asir region, Saudi Arabia. **Eastern Mediterranean Health Journal**, 10(3), 365 – 371.

Marmot, M., and Wilkinson, R. G. (2001). Income and health: Psychosocial and material Pathways—A reply to Lynch et al. **British Medical Journal**, *322*, 1233-1236.

Mat, R., and Taha, H. M. (2003). **Socioeconomic Characteristics of the Elderly In Malaysia.** 21st Population Census Conference 19 – 21, November 2003. Kyoto, Japan Analysis of the 2000 Round of Censuses.

McKague, M., and Verhoef, M. (2003). Understandings of Health and Its Determinants Among Clients and Providers at an Urban Community Health Center **Qualitative Health Research**, 13(5), 703-717.

McMinn, B. (1996). Ageism the challenge for nurses. **Australia Nursing Journal,** 3(10). 18-21.

Ministry of Health. (2008). **Annual Report.** Author.

Ministry of Health. (2000). **Jordan healthcare utilization and expenditure survey 2000. Jordan.** Author.

Ministry of Planning and International Cooperation (MOPIC). (2009). **Main Economic Indicators**: http://www.mop.gov.jo/reports_studies.php

Mirkin, B. (2010). Arab Human Development Report: Population Levels, Trends and Policies in the Arab Region, Challenges and Opportunities United Nations Development Program Regional Bureau for Arab States. **Research Paper Series.**

Montazeri, A., Vahdaninia, M., Mousavi, S. J., Asadi-Lari, M., Omidvari, S., and Tavousi, M. (2011). The 12-item Medical Outcomes Study Short Form Health Survey Version 2.0 (SF-12v2): a population-based validation study from Tehran, Iran. **Health and Quality of Life Outcomes**, 9, 12.

Mosby's Dental Dictionary. (2008). **Definition of utilization.** 2nd edition. Elsevier, Inc.

Muller, I., Smith, T., Mellor, S., Rare, L., and Genton, B. (1998). The effect of distance from home on attendance at a small rural health centre in Papua New Guinea. **International Journal of Epidemiology**, 27, 878-884.

Nie, J. X., Wang, L., Tracy, C. S., Moineddin, R., and Upshur, R. E. (2008). Health care service utilization among the elderly: findings from the Study to Understand the Chronic Condition Experience of the Elderly and the Disabled (SUCCEED project). **Journal of Evaluation Clinician Practice**, 14 (6), 1044-1049.

Nieswiadomy, R. M. (2002). **Foundations of nursing research** (4th ed.). Upper Saddle River, NJ: Pearson Education.

Noro, A. M., Hakkinen, U. T., and Laitinen, O. J. (1999). Determinants of health service use and expenditure among the elderly Finnish population. **European Journal of Public Health**, 9(3). 232-242.

Obermeyer, C. M., and Potter, J. E. (1991). Maternal health care utilization in Jordan: a study of patterns and determinants[Abstract]. **Studies Family Planning**, 22(3), 177-87

Orimo, H., Ito, H., Suzuki, T., Araki, A., Hosoi, T., and Sawabe, M. (2006). REVIEW ARTICLE: Reviewing the definition of “elderly”. **Geriatric Gerontology International,** 6, 149–158.

Park, J. M. (2005). The Determinants of Long-Term Care Utilization and Equity of Access to Care among Older Adults in Dong-Ku of Incheon Metropolitan City, South Korea. **Asia Pacific Journal of Public Health**, 17(2), 104-109.

Patrick, Donald, L., Jane, S., Miquel, P., Carol, Q. P., and Thomas, C. R. (1988). "Poverty, health services, and health status in rural America". **The Milbank Quarterly,** 66, 105-36.

Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., and Feinstein, A. (1995). A simulation of the number of events per variable in logistic regression analysis. **Journal of Clinical Epidemiology,** 99, 1373-1379.

Petro-Nustas, W. I. (2001). Factors associated with mammography utilization among Jordanian women. **Journal of Trans Cultural Nursing**, 12(4), 284-291.

Polit, D. F., and Beck, C. T. (2004). **Nursing research: Principles and methods** (7th ed.) Philadelphia: Lippincott, Williams, & Wilkins.

Põlluste, K., Kalda, R., and Lember, M. (2009). Accessibility and use of health services among older Estonian population. **Central European Journal of Public Health**, 17 (2), 64–70.

Prescott, P.A., and Soeken, K.L. (1989). The potential uses of pilot work. **Nursing Research,** 38, 60–62.

Reiman, A. (2007). Medical Cannabis Patients: Patient Profiles and Health Care

Utilization Patterns. **Complementary Health Practice Review**, 12(1), 31-50.

Ritter, P. L., Stewart, A. L., Kaymaz, H., Sobel, D. S., Block, D. A., and Lorig, K. R. (2001). Self-Reports of Healthcare Utilization Compared to Provider Records. **Journal of Clinical Epidemiology,** 54, 136–141.

Rohrer, J. E., Kruse, G., Borders, T., and Kupersmith, J. (2003). Realized access to physician services among the elderly in West Texas. **Journal of Rural Health**, 19(1), 72-78.

Saeed, A. A., and Mohamed, B. A. (2002). Patients' perspective on factors affecting utilization of primary health care centers in Riyadh, Saudi Arabia. **Saudi Medical Journal,** 23 (10), 1237-1242.

Sahadevan, Lim, P. P., Tan, N, J., and Chan, S. P. (2000). Diagnostic performance of two mental status tests in the older Chinese: influence of education and age on cut-off values. **International Journal of Geriatric Psychiatry**, 15: 234-41.

Scheppers, E., VanDongen, E., Dekker, J., Geertzen, J., and Dekker, J. (2006). Potential barriers to the use of health services among ethnic minorities: a review. **Family Practice**, *23*, 325-348.

Schulz, E. (2004). Use of health and nursing care by the elderly. *ENEPRI* **Research Report** *No. 2.*

Scutchfield, F. D., Marks, J. S., Perez, D. J., and Mays, G. P. (2007). ''Public Health Services and Systems Research.'' **American Journal of Preventive Medicine**, 33 (2), 169–71.

Shakhatreh, F. M., Abbas, A. A., and Issa, A. A. (1996). Determinants of infant mortality and the use of maternity services in Jordan [Abstract]. **Medical and Biological Sciences**, 23(2), 59-69.

Smith, G. C. (2003). Patterns and Predictors of Service Use and Unmet Needs among Aging Families of Adults with Severe Mental Illness. **Psychiatric Services**, 54, 871–877.

Starfield, B., Shi, L., and Macinko, J. (2005). Contribution of Primary Care to Health Systems and Health. **The Milbank Quarterly**, 83(3), 457–502.

Steinwachs, D. M. (1991). Health Services Research: Its Scope and Significance. In: P. Forman, ed. Promoting Health Services Research in Academic Health Centers. Washington, DC: **Association of Academic Health Centers**, 1991. Pp..23-72.

Stone, R. I. (2000). **Long-Term care for the elderly with disabilities: Current Policy, Emerging Trends and Implications for the Twenty-First Century.** http://milbank.org/reports/0008stone/index.html.

Strong, K., Mathers, C., Leeder, S., and Beaglehole, R. (2005). Preventing chronic diseases: How many lives can we save**? Lancet** 366: 1578–1582

Taani, I. (1995). **Analysis of the health situation of the elderly in the city of Irbid**. Masters Thesis, Jordan University of Science and Technology, Irbid, Jordan.

Tabbarah, R. (2002). **Demographic trends of ageing in the Arab countries**. Beirut, Lebanon: ESCWA.

The Population Division Department of Economic and Social Affairs. (2005). **United Nations Secretariat: The Ageing of the World's Population.** [http://www.un.org/esa/socdev/ageing/agewpop.htm].

Turnock, B. J., and Handler, A. S. (1997). ‘‘From Measuring to Improving Public HealthPractice.’’ **Annual Review of Public Health**, 18, 261–82.

United Nations. (2008). **World Population Prospects: 2008 Revision.** Author.

United Nations. (2007). Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. **World population prospects: The 2006 revision.** New York (NY).

United Nations. (2005). **UN Millennium Development Goals**. [online] [Accessed the 21 of November 2010] Available from: http://www.un.org/millenniumgoals/

United Nations. (1983). **Vienna International Plan of Action on Aging**, United Nations, New York, 1983.

Vegda, K., Nie, J. X., Wang, L., Tracy, C. S., Moineddin, R., and Upshur, R. (2009). Trends in health services utilization, medication use, and health conditions among older adults: a 2-year retrospective chart review in a primary care practice. **BMC Health Services Research**, 9, 217.

Villacorta. M. F. (2003). **Health services utilization among the Thai elderly: findings from the Kanchanaburi project demographic surveillance survey**. A Thesis Submitted in partial fulfillment of the requirements for the degree of Master of Arts (population and reproductive health research) faculty of graduate studies Mahidol University.

Vingilis, E., Wade, T., and Seeley, J. (2007). Predictors of adolescent health care Utilization. **Journal of Adolescence**, 30, 773–800.

Walter-Ginzburg, A., Chetrit, A., Medina, C., Blumstein, T., Gindin, J., and Modan, B. (2001). Physician visits, emergency room utilization, and overnight hospitalization in the old-old in Israel: the cross-sectional and longitudinal aging study (CALAS). **Journal of the American Geriatric Society**, 49(5), 549-56.

Wan, T. T. H., (1989). **The behavioral model of health care utilization by older people**. In: Ory, M.G., Bond, K. (Eds.), Aging and Health Care. Social science and policy perspectives. Routledge, London, pp. 52±77.

Ware, J. E., Kosinski, M., Turner-Bowker, D. M., Sundaram, M., Gandek, B., and

Maruish, M. E. (2009). **SF-12v2 Health Survey: Administration guide for clinical trial investigators.** Lincoln, RI: QualityMetric Incorporated.

Ware, J., Kosinski, M., Turner-Bowker, D. M., and Gandek, B. (2007). **User's Manual for the SF-12v2 Health Survey.** QualityMetric Incorporated, Lincoln, RI.

Ware, J., Kosinski, M., Turner-Bowker, D., and Gandek, B. (2002). **SF12v2: How to score version 2 of the SF-12 health survey**. Lincoln, RI: QualiyMetric Incorporated.

Ware, J. E, Kosinski, M., and Keller, S. D. (1998) **SF-12: how to score the SF-12 physical and mental health summary scales**. 3. Lincoln (RI): Quality Metric Incorporated.

Ware, J. E., Kosinski, M., and Keller, S. D. (1996). A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. **Medical Care**, 34, 220–233.

Ware, J. E., and Sherbourne, C. D. (1992). The MOS 36-item short form health survey (SF-36).1. Conceptual framework and item selection. **Medical Care**, 30, 473–483.

Warner, R. (2007). **Applied statistics: From bivariate through multivariate techniques**. Sage.

Webster's New World College Dictionary. (2010). **Catchment's area definition**. Copyright © 2010 by Wiley Publishing, Inc., Cleveland, Ohio.

WHO. (2010). **Aging and life course: Older people and Primary Health Care (PHC).** Retrieved November, 22, 2010, from. www.who.com.

WHO. (2008a). **World Health Report 2008: Primary health care – Now more than ever**. Geneva: WHO

WHO. (2008b). **The social determinants of Health; 2008**. Available at http://www.who.int/social_determinants/en/ (accessed December 14, 2010).

WHO. (2004). **Health of special groups: school health, occupational health and elderly health. Jordan**. Retrieved November, 29, 2010, from. www.who.com

WHO. (2002). **Innovative care for chronic conditions: building blocks for action.** Geneva: Retrieved November, 27, 2010, from. www.who.com

Wikipedia Encyclopedia. (2011). Irbid Governorate - Jordan. (Web site, accessed 10 January 2011). **www wikipedia.com**.

Wolinsky, F. D. (1994). Health service utilization by older adults: Conceptual, measurement and modeling issues in secondary analysis. **The Gerontologist**, 34, 470-475.

Wolinsky, F. D., and Johnson, R. J. (1991). The use of hearth services by older adults. **Journals of Gerontology**, 46: S, 345-57.

Xu, K., Evans, D. B., Carrin, G., Aguilar-Rivera, A. M., Musgrove, P., and Evans, T. (2007). Protecting households from catastrophic health spending. **Health Affairs**, 26(4), 972–983.

Yaghmale, F. (2003). Content validity and its estimation. **Journal of Medical Education,** 3(1), 25-27.

Yam, H., Mercer, S. W., Wong, L., Chan, W., and Yeoh, E. (2009). Public and private healthcare services utilization by non-institutional elderly in Hong Kong: Is the inverse care law operating? **Health Policy**, 91, 229–238.

APPENDIX A – Socio-Demographic Questionnaire

عزيزي المشارك رجاء، نريد الاجابة على الاسئلة التالية

العمر
سنة ☐

الجنس
ذكر ☐
انثى ☐

الحالة الاجتماعية
متزوج ☐
اعزب ☐
مطلق/منفصل ☐
ارمل ☐

المستوى التعليمي
غير متعلم ☐
تعليم اساسي ☐
تعليم ثانوي و اكثر ☐

الحالة المهنية
غير موظف ☐
متقاعد ☐
موظف ☐

استخدام التبغ
غير مدخن ☐
مدخن ☐

التامين الصحي
غير مؤمن ☐
مؤمن ☐

الدخل الشهري
☐

انماط استخدام خدمات الرعاية الصحية الاولية

هل زرت المركز الصحي الاولي او الشامل في منطقتك

خلال اخر شهر؟ نعم ☐ لا ☐
استخدام خدمة طبية نعم ☐ لا ☐
استخدام خدمة تمريضية نعم ☐ لا ☐

خلال اخر 6 شهور ؟ نعم ☐ لا ☐
استخدام خدمة طبية نعم ☐ لا ☐
استخدام خدمة تمريضية نعم ☐ لا ☐

خلال اخر 12شهر ؟ نعم ☐ لا ☐
استخدام خدمة طبية نعم ☐ لا ☐
استخدام خدمة تمريضية نعم ☐ لا ☐

Dear our participant please we want to complete the following questions:

Age:

☐ Years

Gender:

Male ☐

Female ☐

Marital Status

Married ☐

Single ☐

Separated/divorce ☐

Widowed ☐

Educational Level

No education ☐

Primary school ☐

Secondary & higher ☐

Occupational Status

Unemployed ☐

Retired ☐

Employed ☐

Tobacco User

Non smoker ☐

Smoker ☐

Health Insurance

Uninsured ☐

Insured ☐

Monthly Income

☐ JD

Patterns of primary health care services Utilization:

Did you visit any type of primary health care center in your region?

During Last month?	Yes ☐	No ☐
Use medical service	Yes ☐	No ☐
Use nursing service	Yes ☐	No ☐
During Last 6 month?	Yes ☐	No ☐
Use medical service	Yes ☐	No ☐
Use nursing service	Yes ☐	No ☐
During Last 12 months?	Yes ☐	No ☐
Use medical service	Yes ☐	No ☐
Use nursing service	Yes ☐	No ☐

APPENDIX B – Elderly Cognitive Assessment Questionnaire ECAQ.

استبيان التقيم الادراكي للمسن

الذاكرة

1- اريد منك ان تتذكر هذا الرقم . هل تستطيع اعادة الرقم من بعدي: 4517 ☐
2- كم عمرك؟ ☐
3-متى يوم ميلادك؟ او اين ولدت؟ ☐ ☐

معلومات الادراك

4-ما هو اليوم من ايام الاسبوع؟ ☐

-ما هو تاريخ اليوم؟
5- اليوم؟ ☐
6- الشهر؟ ☐
7- السنة؟ ☐ ☐

8- ماذا يسمى هذا المكان؟ ☐
9- ما هو عملك؟ ☐

اعادة التذكر؟

10- هل تستطيع تذكر الرقم مرة اخرى؟ ☐

المجموع ☐

الضعف الادراكي نعم ☐ لا ☐

Elderly Cognitive Assessment Questionnaire (ECAQ):

Memory:

1) I want you to remember this number. Can you repeat after me: 4517? ☐
2) How old are you? ☐
3) When is your birthday? Or where were you born? ☐ ☐

Orientation information:

4) What day of the week is this? ☐

What is the date today?

5) Day? ☐
6) Month? ☐
7) Year? ☐

8) What is this place called (e.g. clinic, hospital)? ☐
9) What is his/here job (e.g. nurse/ doctor)? ☐

Memory recall:

10) Can you recall the number again? ☐

Total scores of the ECAQ ☐

Elderly Cognitive Assessment Questionnaire (ECAQ)

Score 1 point for each answer.

Memory

1. I want you to remember this number. Can you repeat after me: 4517?
2. How old are you?
3. When is your birthday? Or Where were you born?

Orientation information

4. What day of the week is this?
   What is the date today?
5. Day?
6. Month?
7. Year?
8. What is this place called (e.g. clinic, hospital)? No necessity to give name of place.
9. What is his/her job (e.g. nurse, doctor)?

Memory Recall

10. Can you recall the number again?

5 points and below – high risk of cognitive impairment

APPENDIX C – 12-Item Short Form Health Survey Standard, Algeria (Arabic Version Two (SF 12v2).

صحتك ورفاهيتك

يطرح هذا الإستبيان أسئلة تتعلق بآرائك حول صحتك. سوف يمكن هذا الإستبيان من التعرف على شعورك وإحساسك وعلى مدى قدرتك على القيام بأنشطتك العادية. *شكرا لإستكمال هذا الإستبيان!*

لكل من الأسئلة التالية الرجاء وضع هذه العلامة ☒ في المربع الأكثر ملاءمة لجوابك.

1. بصفة عامة، هل تعتبر أن صحتك:

ممتازة	جيدة جدا	جيدة	متوسطة	سيئة
▼	▼	▼	▼	▼
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2. تتعلق الأسئلة التالية بالنشاطات التي يمكنك إنجاز ها خلال يوم عادي. هل صحتك تعيقك حاليا في القيام بالنشاطات التالية؟ إن كان كذلك، فإلى أي مدى؟

	نعم، تعيقني كثيرا	نعم، تعيقني قليلا	لا، لا تعيقني بالمرة
	▼	▼	▼
أ. الأنشطة المتوسطة القوة كنقل طاولة أو دفع مكنسة كهربائية أو ركوب الدراجة أو السباحة	☐ 1	☐ 2	☐ 3
ب. صعود أدراج عدة طوابق	☐ 1	☐ 2	☐ 3

3. خلال الأربعة أسابيع الماضية، كم مرة واجهت أيا من الصعوبات التالية أثناء قيامك بعملك أو بأنشطتك العادية اليومية الأخرى بسبب صحتك الجسدية؟

	دائما	غالبا	أحيانا	نادرا	أبدا
أ. أنجزت أقل مما تريد	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
ب. كنت محدودا في نوع العمل أو أنشطة أخرى	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4. خلال الأربعة أسابيع الماضية، كم مرة واجهت أيا من الصعوبات التالية أثناء قيامك بعملك أو بأنشطتك العادية اليومية الأخرى بسبب مشاكلك العاطفية (مثل الإحساس بالإكتئاب أو القلق)؟

	دائما	غالبا	أحيانا	نادرا	أبدا
أ. أنجزت أقل مما تريد	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
ب. أنجزت عملا أو أنشطة أخرى بإنتباه أقل من المعتاد	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. خلال الأربعة أسابيع الماضية إلى أي مدى أعاق الألم عملك العادي (بما في ذلك عملك خارج البيت وداخله)؟

لا شيء	قليلا	بنسبة معتدلة	كثيرا	بنسبة عالية جدا
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6. تتعلق الأسئلة التالية بشعورك وبتدبيرك الأمور خلال الأربعة أسابيع الماضية. بالنسبة لكل سؤال، الرجاء إعطاء الجواب الأقرب من شعورك. خلال الأربعة أسابيع الماضية، كم مرة...

	دائما	غالبا	أحيانا	نادرا	أبدا
ا. شعرت بالهدوء والطمأنينة؟	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
ب. شعرت أن لديك الكثير من الطاقة؟	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
ج. شعرت بالحزن والإكتئاب؟	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

7. خلال الأربعة أسابيع الماضية، كم مرة أعاقت صحتك الجسدية أو مشاكلك العاطفية أنشطتك الإجتماعية (مثل زيارة الأصدقاء والأقارب، ألخ.)؟

دائما	غالبا	أحيانا	نادرا	أبدا
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

شكرا لإجابتكم على هذه الأسئلة!

APPENDIX C (continued) – 12-Item Short Form Health Survey Standard, English Version Two (SF 12v2).

Your Health and Well-Being

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. ***Thank you for completing this survey!***

For each of the following questions, please mark an ☒ in the one box that best describes your answer.

1. **In general, would you say your health is:**

Excellent	Very good	Good	Fair	Poor
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2. **The following questions are about activities you might do during a typical day. Does __your health now limit you__ in these activities? If so, how much?**

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	☐ 1	☐ 2	☐ 3
b Climbing several flights of stairs	☐ 1	☐ 2	☐ 3

3. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Accomplished less than you would like	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b Were limited in the kind of work or other activities	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Accomplished less than you would like	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b Did work or other activities less carefully than usual	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6. **These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks…**

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a Have you felt calm and peaceful?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b Did you have a lot of energy?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c Have you felt downhearted and depressed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

7. **During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?**

All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Thank you for completing these questions!

APPENDIX C (continued) -12-Item Short Form Health Survey Standard, Algeria (Arabic Version Two (SF 12v2).

This is to certify that the IQOLA Project has prepared a true translation from English (for the United States) into Arabic (for Algeria) of the SF-36v2® and SF-12® Health Surveys. These translations were developed using the standard IQOLA translation methodology, which involves multiple independent forward translations by in-country native speakers; reconciliation of the translations into one form; backward translation of this translation into English to check for conceptual equivalence with the source form; qualitative debriefing tests with a small number of native speakers of Arabic in Algeria; and final proofreading. The SF-12v2® Health Survey translation contains a subset of 12 items from the SF-36v2® Health Survey translation.

Further details of the IQOLA translation process can be found in the following peer-reviewed article:

> Bullinger M, Alonso J, Apolone G, Leplège A, Sullivan M, Wood-Dauphinee S, et al. Translating health status questionnaires and evaluating their quality: The International Quality of Life Assessment Project approach. J Clin Epidemiol 1998; 51:913-923.

Sincerely,

Barbara Gandek

Barbara Gandek, M.S.
Director, IQOLA Project

APPENDIX D – Copy of Ethical Approval from University of Jordan

الجامعة الأردنية
THE UNIVERSITY OF JORDAN
رئاسة الجامعة
University Administration

معالي وزير الصحة الأكرم

الموضوع :- تسهيل مهمة

تحية طيبة وبعد ،،،

فأرجو إعلامكم بأن الطالب " عبدالله سامح الخوالدة " من طلبة برنامج الدكتوراه في كلية التمريض بالجامعة الأردنية يقوم بإعداد أطروحته الموسومة بـ :-

Factors Associated With Primary Health Care Services Utilization Among Older Adults In the Irbid Governorate Of Jordan

ويحتاج إلى الحصول على قاعدة بيانات لأطروحته من خلال تواصله مع "المراكز الصحية الشاملة التابعة لمديرية صحة محافظة اربد .

أرجو التكرم بالموافقة والإيعاز للمعنيين لديكم بتسهيل مهمة الطالب المذكور أعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

/ رئيس الجامعة
نائب الرئيس لشؤون الكليات الصحية والمستشفى

الدكتورة نميس درويش رجب

المملكة الأردنية الهاشمية
وزارة الصحة

Tel: (962-6) 5355000 Ext. 21120 Fax: (962-6) 5355511 Ext. 21035 AMMAN 11942 JORDAN
E-mail: admin@ju.edu.jo
http://www.ju.edu.jo

APPENDIX E – Copy of Ethical Approval from Jordan Ministry of Health

وزارة الصحة

الرقم ....
التاريخ ....
الموافق ....

مدير مستشفى البشير
رئيس لجنة اخلاقيات البحث العلمي

تحية طيبة وبعد ...

ارفق طيا صورة عن كتاب رئيس الجامعة الاردنيـــة رقم ١٠٩/٧/١/١١ تاريخ ٢٠١١/١/٦ بخصوص طلب السماح لطالب الدكتوراة **عبد الله سامح الخوالدة** من كليـة التمريض / الجامعة الاردنية إجراء بحث بعنوان :-

(Factors Associate With Primary Health Care Services Utilization Among Older Adults In the Irbid Govemorate of Jordan)

وذلك عن طريق الاطلاع على قواعد البيانات الموجودة في المراكز الصحية الشاملة التابعة لمديرية صحة اربد .

ارجو التكرم بالاطلاع واعلامي امكانية الموافقة على اجراء البحث اعلاه .

واقبلوا احترامي ...

مدير تطوير الموارد البشرية

الدكتور أيوب السيايدة

المملكة الأردنية الهاشمية
www.moh.gov.jo

وزارة الصحة

الرقم م ب ا / لجنة اخلاقيات / ١٤٠

التاريخ ٢٠١١/١/٢٧

الموافق

مدير تطوير الموارد البشريه

تحيه طيبه وبعد

اشاره لكتابكم رقم تطوير / متدربين /٥٧٨ تاريخ ٢٠١١/١/١٢ بخصوص البحث المقدم من طالب الدكتوراه / عبد الله سامح الخوالده .

بعنوان :-

"Factors Associate with Primary Health Care Services Utilization Among Older Adults in the Irbid Govemorate of Jordan"

يرجى التكرم بالعلم بأنه تم عرض البحث على لجنة اخلاقيات البحث العلمي وقد قررت اللجنه الموافقه على اجراء البحث المشار اليه اعلاه .

للاطلاع واجراءاتكم لطفا .

واقبلوا الإحترام

رئيس لجنة اخلاقيات البحث العلمي

الدكتور عبد الهادي البريزات

وزارة الصحة
مديرية تطوير الموارد البشرية
٩٨٢

ص ب /ر س

المملكة الأردنية الهاشمية

وزارة الصحة

الرقم تطوير/تدريب/١٢٩
التاريخ ٣١/١/٢٠١١
الموافق

مدير صحة محافظة اربد

تحية طيبة وبعد ،،،

ارفق طيا كتاب رئيس لجنة اخلاقيات البحث العلمي رقم م ب ١/لجنة اخلاقيات/١٧٤٠ تاريخ ٢٠١١/١/٢٧ بخصوص السماح لطالب الدكتوراة **عبد الله سامح الخوالدة** من كلية التمريض / الجامعة الاردنية إجراء بحث بعنوان :-

(Factors Associate with Primary Health Care Services Utilization Among Older Adults in the Irbid Covemorate of Jordan)

وذلك عن طريق الاطلاع على قواعد البيانات الموجودة في المراكز الصحية الشاملة التابعة لمديرية صحة اربد .

ارجو التكرم بالاطلاع والايعاز لمن يلزم تسهيل مهمة الباحث المذكور اعلاه .

واقبلوا احترامي ،،،

مدير تطوير الموارد البشرية

الدكتور أيوب السيايدة

عدد الباحثين (١)

APPENDIX F – Permission to use the ECQA Instrument**.**

Tue, 09 Nov 10 17:23:04 +0000

"abdulah alkawaldeh" <abdo-75@maktoob.com>

"Kua Ee Heok" <ee_heok_kua@nuhs.edu.sg>

RE: ECAQ TOOL

تغيير اتجاه النص

Dear Professor Kua,

How are you. i am now prepare my proposal. and i will send to you a copy of my proposal when it get the final acceptance . our Dr i may need a written permission to use your tool if you please.
thanks alot for yuor efforts.
your sincerly,
abdulah

> On Tue, 5 Oct 2010 05:31:18 +0800, Kua Ee Heok <ee_heok_kua@nuhs.edu.sg> wrote:
>
> certainly, Abdulah,
>
> can you snd me a copy of your published work ?
>
> regards
>
> Professor Kua Ee Heok
>
> ---
>
> **From:** abdulah alkawaldeh [abdo-75@maktoob.com]
> **Sent:** Tuesday, October 05, 2010 3:17 AM
> **To:** Kua Ee Heok
> **Subject:** ECAQ TOOL
>
> Dear Professor Kua,
>
> How are you. we hope you are fine. may i have your written permission to use the ECAQ tool in my study.
>
> thanks alot,
> your sincerly,
> abdulah alkawaldeh,
> PhD student, jordan university, jordan

APPENDIX G – Permission to use the Standard, Algeria (Arabic) SF-12v2

LICENSE AGREEMENT
ACKNOWLEDGEMENT BY EDUCATOR

License Number:	CT130430 / OP011094
Licensee Name:	Abdullah Alkawaldeh
Licensee Address:	Alkettah POST OFFICE Alkettah Village Jerash Governorate, Jordan
Licensee College/University:	University of Jordan
License Term:	Beginning on February 7, 2011 and ending on February 6, 2012
Licensed Surveys:	SF-12v2® Health Survey – Standard Recall Algeria (Arabic) United States (English)
Educator Name:	Madi Aljaghoir
Educator Address:	University of Jordan Jubaiha Amman 11942 Jodan
Educator E-mail Address:	
Educator phone #:	065355000
Approved Purpose:	Factors Associated with Primary Health Care Services Utilization Among Older Adults in the Irbid Governorate of Jordan

Educator affirms that Licensee is currently enrolled as a student at the above-referenced college/university, and that Licensee's use of the Licensed Surveys is in pursuit of Licensee's thesis, dissertation or required class project, and not on behalf of, or for the benefit of, the above-referenced college/university, a university hospital, hospital, or other organization or entity. Educator acknowledges that the Licensed Survey(s) are owned by QualityMetric ("QM") and licensed by Licensee under the License Agreement identified above, solely for use in connection with the Approved Purpose. Educator agrees and acknowledges that the Licensee is allowed to use and administer the Licensed Survey(s) only during the License Term and only for the Approved Purpose, and that neither Educator nor the Licensee may use the Licensed Survey(s) or the individual responses received by Licensee through administration of the Licensed Surveys, for any other purpose, including, but not limited to, any commercial purpose. Further, Educator agrees and acknowledges that the college/university identified above will not provide, directly or indirectly, monetary compensation to Licensee for the research to be performed by Licensee in connection with the Approved Purpose.

Educator is not a party to the License Agreement.

(This space intentionally left blank)

APPENDIX G (continued) – Permission to use the standard, Algeria (Arabic) SF-12v2

IN WITNESS WHEREOF, the Educator has executed this Acknowledgement by Educator as of the date set forth below.

ACKNOWLEDGED, ACCEPTED, AND AGREED TO:

Educator

By:__________________________

Name: Mad. Jaghbir

Title: prof

Date: 2/2/2011

APPENDIX G (continued) – Permission to use the standard, Algeria (Arabic) SF-12v2

NON-COMMERCIAL LICENSE AGREEMENT
Office of Grants and Scholarly Research (OGSR)

License Number: CT130430 / OP011094

Effective Date: February 9, 2011

Licensee Name: Abdullah Alkawaldeh

Licensee Address: Alkettah POST OFFICE
Alkettah Village
Jerash Governorate, Jordan

Requested Administrations: 300

Approved Use: Non-commercial academic research - unfunded - Factors Associated with Primary Health Care Services Utilization Among Older Adults in the Irbid Governorate of Jordan

Term: Beginning on February 9, 2011 and ending on February 8, 2012

Licensed Surveys: As indicated in Appendix B attached

Manuals: Licensee must purchase (or have purchased) from QM a copy of the manuals indicated in Appendix B attached

Royalty Fee: None, because this License is granted in support of the non-commercial Approved Use below

Administrative Fee: $0.00 **USD**

Licensee accepts and agrees to the terms of this Non-Commercial License Agreement (the "Agreement") from the Office of Scholarly Grants and Research (OGSR) of QualityMetric Incorporated ("QM") as of the Effective Date.

Subject to the terms of this Agreement, including the QualityMetric Non-Commercial License Terms and Conditions attached as Appendix A: (a) QM grants to Licensee, and Licensee accepts, a non-exclusive, non-transferable, non-assignable, non-sublicensable worldwide license to use, solely for the Approved Use and during the License Term, the Licensed Surveys in the authorized Modes and Approved Languages indicated on Appendix B and to administer the Licensed Surveys only up to the Approved Administrations (and to make up to such number of exact reproductions of the Licensed Surveys necessary to support such administrations) in any combination of the specific Licensed Surveys and Approved Languages and Modes and to use any related software provided by QM and (b) Licensee agrees to pay the Administrative Fee and other applicable charges in accordance with the attached invoice.

Capitalized terms used in this Agreement and not otherwise defined herein shall have the meanings assigned to them in Appendix A. The appendices attached hereto are incorporated into and made a part of this Agreement for all purposes.

Abdullah Alkawaldeh
Alkettah POST OFFICE
Alkettah Village
Jerash Governate, Jordan

Signature: [signature]
Name: Abdallah alKawaldeh
Title: PhD Student, Jordan University

➢ For additional information about QM's OGSR , go to http://www.qualitymetric.com/advancing/ ◄

APPENDIX G (continued) – Permission to use the standard, Algeria (Arabic) SF-12v2

APPENDIX A

QUALITYMETRIC NON-COMMERCIAL LICENSE TERMS AND CONDITIONS

Attached to and Incorporated into License Agreement (OGSR) - 09-2008

No Commercial Use of Data - Licensee agrees to use the data resulting from Licensee's administration of the Licensed Surveys only for the Approved Use and related academic or scientific uses. Licensee agrees not to use such data for any other purpose or to provide such data to any commercial entity or to any entity for commercial purposes.

License Fees and Payment Terms – Licensee agrees to pay the Administrative Fee and all other charges on the subsequent invoice, upon receipt. All amounts are stated in, and all payments shall be in, U.S. Dollars. Licensee shall be responsible for all taxes relating to all fees and charges. Such fees and charges are exclusive of any sales taxes, value added taxes, duties, or other withholding.

License Term and Termination – This Agreement shall be effective until end of the License Term, after which this Agreement and the licenses granted here under shall terminate. Notwithstanding the foregoing, QM may terminate this Agreement at any time upon in the event of a material breach by Licensee or its personnel of this Agreement that is not cured within thirty (30) days following notice to Licensee.

Administration by Students and Third Parties – Students of Licensee may use and administer the Licensed Surveys, subject to such students' execution of QM's Acknowledgement by Students, available by request. A third party service provider may administer the Licensed Surveys on behalf of Licensee, subject to such third party's execution of QM's Acknowledgement By Agent, available by request. However, in all such cases, Licensee shall not be relieved of its obligations, and Licensee shall be responsible for any breach hereof by such student or third party.

Trademark and Copyright Notices – Licensee agrees to reproduce the copyright and trademark notices included with the Licensed Surveys on all reproductions of the Licensed Surveys permitted hereunder, including electronic reproductions and representations.

Records – Licensee shall maintain accurate records, in all material respects, containing information sufficient to verify Licensee's compliance with this Agreement, including as applicable, but not limited to, records of the number of reproductions of the Licensed Survey(s) made, the location of and/or confirmation of the destruction of such reproductions, the number of administrations of the Licensed Surveys performed, and the use(s) made of the data resulting from Licensee's administration of the Licensed Surveys.

Proprietary Rights – Licensee acknowledges that the Licensed Surveys, copyright in the Manuals, and all intellectual property rights related thereto ("Survey Materials"), shall be and remain at all times the property of QM. Licensee shall have no right, title or interest in the Survey Materials except for the limited license described herein. Licensee shall not use, modify, reproduce, or transmit any of the Survey Materials except as expressly provided hereunder in connection with the Approved Use. If the Approved Use includes administration of the Licensed Surveys in physical form, Licensee is authorized to make exact reproductions of the Licensed Survey(s) sufficient to support such administrations.

Ownership of Survey Results Data – Notwithstanding the foregoing, the parties agree that all results of Licensee's administration of the Licensed Survey(s) shall be the property of Licensee.

Confidentiality; Injunctive Relief – Licensee acknowledges that the Survey Materials are valuable assets of QM and that the value of the Survey Materials would be significantly impaired by the unauthorized distribution or use of them. Licensee shall ensure that the Survey Materials are not used for unauthorized purposes or by unauthorized persons, and shall promptly report any such unauthorized use to QM. Licensee acknowledges that, in the event of any material breach of this paragraph by the Licensee, money damages would not be a sufficient remedy, and that QM shall, to the extent permitted by applicable law, be entitled to equitable relief, including injunction. Such relief shall be in addition to all other remedies available at law or in equity.

APPENDIX G (continued) – Permission to use the standard, Algeria (Arabic) SF-12v2

Disclaimer of Warranty – Licensee understands and acknowledges that complex and sophisticated products such as the Survey Materials are inherently subject to undiscovered defects. QM cannot and does not represent or warrant to Licensee that the Survey Materials are free from such defects, that operation of the Survey Materials will be uninterrupted or error free, or that its results will be effective or suitable with respect to any particular application. GOODS AND SERVICES HEREUNDER ARE PROVIDED AS-IS, AND QM MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE WITH RESPECT TO SUCH GOODS OR SERVICES OR THIS AGREEMENT, AND DISCLAIMS ALL WARRANTIES INCLUDING WITHOUT LIMITATION ANY REPRESENTATIONS OR WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OR OTHERWISE.

LIMITATION OF LIABILITY – REGARDLESS OF WHETHER ANY REMEDY SET FORTH HEREIN FAILS OF ITS ESSENTIAL PURPOSE, IN NO EVENT SHALL EITHER PARTY'S TOTAL LIABILITY FOR ALL CLAIMS ARISING HEREUNDER (EXCEPT FOR INTELLECTUAL PROPERTY INDEMNIFICATION, BREACH OF CONFIDENTIALITY OBLIGATIONS AND CASES OF GROSS NEGLIGENCE OR WILLFUL MISCONDUCT) EXCEED THE AMOUNT OF THE FEES PAID BY LICENSEE TO QM HEREUNDER. FURTHER, IN NO EVENT SHALL QM BE LIABLE TO LICENSEE OR ANY THIRD PARTY FOR ANY SPECIAL, PUNITIVE, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, ARISING FROM ANY CLAIMED BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR ANY OTHER LEGAL THEORY, EVEN IN QM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SUCH EXCLUDED DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, LOST PROFITS, COST OF ANY SUBSTITUTE GOODS OR SERVICES, LOST BUSINESS INFORMATION AND DATA, AND BUSINESS INTERRUPTION.

Miscellaneous – This Agreement constitutes the entire and exclusive agreement between the parties and supersedes all previous communications or agreements, either oral or written, with respect to the subject matter hereof. This Agreement may not be modified or amended except by an instrument in writing signed by both parties. The Appendices attached hereto are incorporated into and made a part of this Agreement for all purposes.

Notices, copies of notices or other communications shall be sent to a party at the address set forth on the first page of this Agreement. All notices shall be effective upon delivery of the notice at such address.

Any waiver of any breach or default under this Agreement must be in writing and shall not be deemed a waiver of any other or subsequent breach or waiver. Failure to delay by either party to enforce compliance with any term or condition of this Agreement shall not constitute a waiver of such term or condition.

If any provision is this Agreement is determined to be invalid or unenforceable, the remaining provisions of this Agreement shall not be affected thereby and shall be binding upon the parties hereto, and shall be enforceable, as though the invalid or unenforceable provision were not contained herein.

In the event a Licensed Survey or associated QM intellectual property is exported outside of the United States by Licensee, both parties agree that Licensee is obligated and solely responsible for ensuring compliance with all applicable import and export laws and regulations of the United States of America and any applicable foreign jurisdictions. Licensee shall indemnify, defend and hold harmless QM (including payment of all reasonable costs, fees, settlements and damages) with respect to any suits or proceedings brought against QM arising from Licensee's export of a Licensed Survey.

This Agreement and performance hereunder shall be governed in accordance with the laws of the State of New York, but excluding New York choice of law principles. With respect to any dispute arising in connection with this Agreement, Licensee consents to the exclusive jurisdiction and venue in the state and federal courts located in New York City, New York.

This Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which shall be deemed the same agreement

* * *

APPENDIX G (continued) – Permission to use the standard, Algeria (Arabic) SF-12v2

APPENDIX B

QUALITYMETRIC LICENSE (OGSR) - LICENSED SURVEYS AND MANUALS
Attached to and Incorporated into QM - SLA - OGSR - 09-2008.doc

Licensed Surveys and Approved Languages

SF-12v2® Health Survey – Standard Recall

Algeria (Arabic)
United States (English)

Very Important - Please Read

NO formatting or editing changes to the survey

In order to obtain licensing from Licensor no changes can be made to the survey forms. Any format and/or language changes have the potential to affect the survey data received. Therefore, to maintain the validation and integrity of the SF Health Surveys, **no language or formatting changes** allowed. The format of the survey is scientifically engineered to facilitate accurate and unbiased data, as well as keeping the SF Health Survey in a visual format that is comprehensible to the patient/participant, including those who may be impaired and/or elderly. **You should administer the survey in the exact format you will receive it in. The only item Licensee may add is a header with patient identification and / or administration information. If you do wish to add a header please ask for a sample copy of the survey to edit and then submit this to your Account Representative for review prior to signing this License Agreement.** Other than this, Licensor cannot guarantee the validity and/or reliability of data obtained from using modified surveys and we will not be able to license any modified survey form. Once the licensing process is completed, you will receive a clean set of Survey Forms in a word and .pdf. file. These are the forms you will administer. **Please do not use any forms you may already have access to as the ones we send you are the most current versions.**

REQUIRED SCORING MATERIALS

QualityMetric Certified Scoring Software™

- Score 8 Domains and 2 Summary Measures
- Missing Item Recovery

APPENDIX H – Cover letter and Content Validity Questionnaires

Cover letter

Dear Dr,

I am Abdullah Alkawaldeh, a PhD student in school of nursing at Jordan University. I need your help to evaluate the content validity for the SF12v2 tool; this tool will be used as an instrument in my dissertation. Specifically, this tool will be used to measure (perceived general health status in the last 1 month period), which is one of the need factors in my study. Participants will be Jordanians aged 50 year and older living in the Irbid governorate of Jordan.

The SF-12v2 is the most recent subset scale of the SF-36v2 health-related quality of life (HRQOL) measure (Ware & Sherbourne, 1992). The SF12v2 questionnaire (entitled “Your Health and Wellbeing”) is an extensively used and well recognized quality of life survey which examines both the physical and emotional domains of health and wellbeing (Cheak-Zamora et al., 2009) that have been developed by the Quality-Metrics organization based in the United States.

It is an advance over the previous SF-12v1 (Ware, Kosinski, Turner-Bowker, & Gandek, 2002).

SF-12v2 is a general health status instrument that assesses HRQOL by asking 12 Likert scale questions that measure (8) domains: physical function, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health (Ware, Kosinski, & Keller, 1996). These (8) domains are summarized into physical (PCS) and mental (MCS) component summary scales through established norm based scoring (NBS) algorithms (Ware, Kosinski, & Keller, 1998). Once the scores are transformed, the general population has a mean of 50 and a standard

deviation of 10. Consequently when compared to the general population, HRQOL is considered to be below the norm if PCS or MCS scores are calculated to be below 50.

SF-12v2 as a general measure of health status does not target a specific age, disease, or treatment group. It is available in two forms, each covering a specific recall period; the standard or 4-week recall and the acute or 1-week recall. Also, it is available in multiple language translations. In my study the SF-12v2 Health Survey Standard, Algeria (Arabic) will be used.

For each item, I will appreciate your input and comments regarding relevancy, accuracy, adequacy, clarity, and representativeness. A description of these five criteria is represented in box 1 below. For each one of these five criteria, please use the 4- point likert scale where (1 = not relevant to 4 = high relevant). Please use box 2 to provide your comments, use box 3 to fill the short Demographic questionnaire. Also, in the last page you will find the original tool, Thanks a lot for you.

Box 1 **Evaluation Criteria**	**Description of the Evaluation Criteria**
Relevancy Accuracy Adequacy Clarity Representativeness	Having a connection with matter at hand (socially & practically applicable). The ability of the tool to match the actual value of the quantity being measured. Sufficient to satisfy requirements (measure all the dimensions of the construct). Clearness of thoughts, construct, and wording (e.g.; not obscured and not confused). Serving as a typical example.

Box 2. Criteria for Measuring Content Validity

Not relevant	Highly relevant

……………………………………*……………………..*
1 2 3 4

Representa-tiveness	**Clarity**	**Adequacy**	**Accuracy**	**Relevancy**	**Item**
					1- بصفة عامة، هل تعتبر أن صحتك.
					2- هل صحتك تعيقك حاليا في القيام بالنشاطات التالية؟ إن كان كذلك، فإلى أي مدى؟ **ا- الأنشطة المتوسطة القوة كنقل طاولة أو دفع مكنسة كهربائية أو ركوب الدراجة أو السباحة**

ب- صعود أدراج عدة طوابق					
3- خلال الأربعة أسابيع الماضية،، كم مرة واجهت أيا من الصعوبات التالية أثناء قيامك بعملك أو بأنشطتك العادية اليومية الأخرى بسبب صحتك الجسدية؟ أ - أنجزت أقل مما تريد ب -كنت محدودا في نوع العمل أو أنشطة أخرى					
4- خلال الأربعة أسابيع الماضية، كم مرة واجهت أيا من الصعوبات التالية أثناء قيامك بعملك أو بأنشطتك العادية اليومية الأخرى بسبب مشاكلك العاطفية (مثل الإحساس بالإكتئاب أو القلق)؟ ا- أنجزت أقل مما تريد. ب- أنجزت عملا أو أنشطة أخرى بانتباه أقل من المعتاد					
5- خلال الأربعة أسابيع الماضية إلى أي مدى أعاق الألم عملك العادي (بما في ذلك عملك خارج البيت					

					وداخله)؟
					6- تتعلق الأسئلة التالية بشعورك وبتدبيرك الأمور خلال الأربعة أسابيع الماضية. بالنسبة لكل سؤال الرجاء إعطاء. الجواب الأقرب من شعورك خلال الأربعة أسابيع الماضية، كم مرة... ا- شعرت بالهدوء والطمأنينة؟ ب- شعرت أن لديك الكثير من الطاقة؟ ج- شعرت بالحزن والإكتئاب؟
					7- خلال الأربعة أسابيع الماضية، كم مرة أعاقت صحتك الجسدية أو مشاكلك العاطفية أنشطتك الإجتماعية (مثل زيارة الأصدقاء والأقارب، ألخ.)؟

Box 3. Demographic questionnaire

Your Scientific degree	
University of graduation	
Work place	
Specialty area.	

Courses that you teach	
Published researches:	

العوامل المرتبطة باستخدام خدمات الرعاية الصحية الاولية عند كبار السن في محافظة اربد من الاردن

اعداد
عبدالله سامح الخوالده

المشرف
الاستاذ الدكتورة وسيله بيترو

المشرف المشارك
الاستاذ الدكتور ماضي الجغبير
الاستاذ الدكتوره مارجو هولم

ملخص

الهدف: الهدف من هذه الدراسه هو فحص الانماط و العوامل المرتبطة باستخدام خدمات الرعاية الصحية الاولية في فترة1 ، 6، و12 الاشهر الماضيه من قبل الاردنيين بعمر 50 سنة و اكثر الذين يعيشون في محافظة اربد شمال الاردن عام 2011.

الطريقة: تم استعمال تصميم دراسةِ مستعرض لجمع البيانات مِنْ 190 مشاركِ باستخدام مقابلات بيتيه مُنَظَّمة وجهاً لِوجه. المتغير التابع كان إستخدامَ خدمةِ الرعاية الصحية الاولية. باستخدام نموذج انديرسن لاستخدام الخدمات الصحيه، المتغيرات المستقله صُنّفت إلى ثلاث مجموعات: العوامل المهيئة، الممكنة، و وعوامل الحاجةِ. الإحصاء الوصفي غالبا نسب طبقت. الإرتباطات و نماذج الإرتدادِ اللوجستيكي استخدمت لفحص الارتباط بين المتغيرات المستقله و إستخدامَ خدمات الرعاية الصحية الاولية.

النتائج: في فترة الشهر الماضي، كان معدل استخدام الخدمات الطبيه و التمريضيه اقل من نصف المشاركين. في فترة 6 شهور الماضيه، الخدمات الطبيه استخدامت بنسبة 68.4% و الخدمات التمريضيه استخدامت بنسبة 31.6% من المشاركين. في فترة 12 شهور الماضيه، الخدمات الطبيه استخدامت بنسبة 73.8% و الخدمات التمريضيه استخدامت بنسبة 44.8% من المشاركين. في التحليل الثنائي، إستخدامَ خدمات الرعاية الصحية الاولية في الشهر الماضي كان مرتبط مع المستوى التعليمي، استخدام التبغ، الامراض المزمنه، ادراك الحاله الصحيه العامه اليوم، و علامات ملخص الحاله الجسميه. في فترة 6 شهور الماضيه، ، إستخدامَ خدمات الرعاية الصحية الاولية كان مرتبط مع العمر، المستوى التعليمي، استخدام التبغ، التوظيف، الامراض المزمنه، ادراك الحاله الصحيه العامه اليوم، و ادراك الحاله الصحيه العامه في ال 6 شهور الماضيه. في فترة 12 شهر الماضيه إستخدامَ خدمات الرعاية الصحية الاولية كان مرتبط مع العمر، المستوى التعليمي، استخدام التبغ، التوظيف، الامراض المزمنه، ، ادراك الحاله الصحيه العامه اليوم، و ادراك الحاله الصحيه العامه في ال 12 شهر الماضيه. في التحليل المتعدد، المتنبيء الاساسي لاستخدام خدمات الرعاية الصحية الاولية في فترة 1 ، 6، و12 الاشهر الماضيه عند كبار السن كان عامل الحاجه، و تحديدا، الامراض المزمنه
(OR= 13.32; 95 % CI= 3.61-49.12), (OR= 19.63; 95 % CI= 7.67-50.20), and (OR= 17.91; 95 % CI= 6.97-46.02)، بالترتيب.

الاستنتاج: يوجد هناك معدل عالي للامراض المزمنه عند كبار السن في المناطق التي اخذت منها العينه من محافظه اربد شمال الاردن. النتائج عكست معدلات عاليه لاستخدام خدمات الرعايه الصحيه الاوليه. العديد من

العوامل المهيئة و الحاجه تم تعريفها على انها مرتبطه مع استخدام خدمات الرعاية الصحية الاولية. و مع ذلك اقوى متنبىء لاستخدام خدمات الرعاية الصحية الاولية كان الامراض المزمنه.

التوصيات: توصيات للبحث، للسياسه و انظمه الرعايه الصحيه، وتطبيق التمريض و التعليم تم مناقشتها.

كلمات رئيسيه: كبار السن، خدمات الرعايه الصحيه، استخدام، انماط ، نموذج اندرسون، الاردن.